

**NEC** Portable Computer

# PC-8401BM

## QUICK GUIDE

MODEL : PC-8401BM  
SERIAL No. : 6600243JA

INCLUDES QUICK COMMANDS FOR:

WordStar-To-Go™

Calc-To-Go™

TELECOMMUNICATIONS

PERSONAL FILER

designed for the man and woman on the go

## HOW TO USE THIS QUICK GUIDE

The *PC-8401BM Quick Guide* is a concise version of the four other PC-8401BM manuals. It's been designed to help you quickly find information about specific PC-8401BM subjects. It's also been designed so you can take it anywhere you carry your PC-8401BM portable computer.

Although most of the information you need to operate the PC-8401BM is included in this *Quick Guide*, you should read the other manuals first for a more complete description of the capabilities of the PC-8401BM.

Section 1 covers general information such as power supply, startup and the keyboard. Section 2 includes information about the PC-8401BM MENU.

Section 3 lists information about compatible peripherals.

Section 4 through 7 are Quick Guides for each ROM-based application program included in the PC-8401BM.

Section 8 outlines procedures for accessing electronic data services and communicating with other computers via the RS-232C interface.

### Notations used in this Quick Guide are:

#### BOLD FACE CAPS

Type in the command exactly as written.

**RTN**

Press **RETURN** key.

**f.1**

Function Key

**f.6 — f.10**

Press **SHIFT** and **f.1 — f.5** Keys simultaneously.

**CTRL**

Press **CONTROL** Key.

**D**

Press **D** Key (Single-key command).

**CTRL B**

Press **CONTROL** and **B** Keys simultaneously (Two-key command).

**CTRL Q C**

Press **CONTROL** and **Q** Keys, then **C** Key. (Three-key command).

**. M T** or **.MT**

Press **.**, then **M**, then **T** Keys (Dot command).

**G**

Program option key used only within a previously entered command.

*n*

Any number.

Filename

Insert your own filenames for these example filenames.

Filename.EXT

Filename example with an extension.

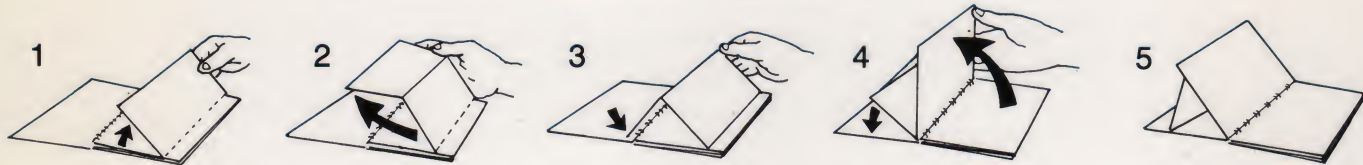
A>

Prompt symbol. Indicates the PC-8401BM operating system is prepared to accept a command.

*NEC*



## BUILT-IN-EASEL



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## 1. USING THE NEC PC-8401BM PORTABLE COMPUTER

### POWER SOURCES

- The PC-8401BM can operate on four R14 or LR14 batteries.
- The PC-8401BM can operate on ordinary household current (AC240V) by attaching an DC 9 V adapter (PC-8471BM-01).
- The PC-8401BM can also operate on rechargeable NiCad batteries, which must be recharged externally (not available from NEC).

### INITIAL POWER ON

For initial Power ON or Power ON after extended storage:

1. Insert four R14 or LR14 batteries, four NiCad batteries or connect the PC-8471BM-01 DC 9 V adapter.
2. Turn ON the back-up battery switch on the bottom of the PC-8401BM.
3. Turn ON the power switch on the right of the PC-8401BM. (The switch cannot be turned ON unless the back-up battery switch is ON.)
4. Push the reset button on the back of the PC-8401BM.
5. Format RAM #1, the 32K internal RAM disk, using the FORMAT command **F-10** . Then choose **F-1** for RAM #1. Answer Y. 

The internal RAM disk will now be formatted.

### RESET

The PC-8401BM, at power ON, always defaults (or returns) to its status at the last power OFF. This is a convenient feature because you can

quickly resume working after a break or an interruption with a minimum effort.

Reset initializes the PC-8401BM but does not initialize file storage areas, including the internal RAM disk. To perform RESET:

1. Push in the RESET button when power is ON.
2. Press **SHIFT STOP** at the same time you turn the power switch ON. A RESET is also performed if you change the device configuration while power is OFF.

NOTE: Be sure to RESET when connecting peripherals to or disconnecting peripherals from the system slot.

After a RESET, the PC-8401BM automatically returns to the 32K CP/M mode and the LCD is the selected display.

### BATTERY LIFE FOR MAIN POWER

- Four new LR14 batteries → Can maintain power ON for 12 hours.
- Four new R14 batteries → Can maintain power ON for 3.5 hours.

### BACK-UP BATTERY

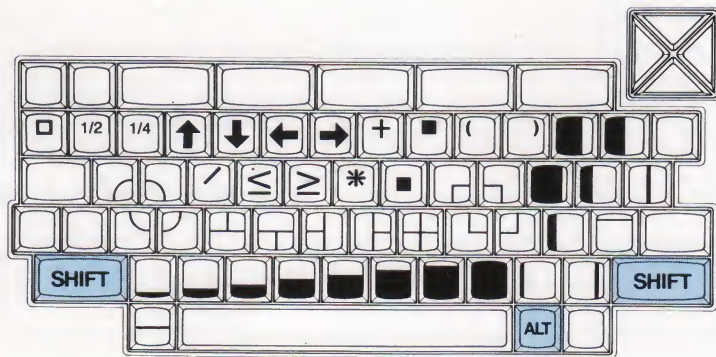
- Is fully charged when you purchase the PC-8401BM.
- Is charged when four R14 or LR14 batteries are installed or AC Adapter (PC-8471BM-01) is connected and Back-up Battery Switch is ON.
- Fully charged Back-up Battery can back-up the RAM
  - for 15 days (if there is no main power supply).
  - for 120 days (if new four LR14 batteries are installed).
  - for 60 days (if new four R14 batteries are installed).
  - forever (if PC-8471BM-01 is connected).

# ALTERNATE CHARACTER SET

with **ALT**



with **SHIFT** + **ALT**



## HARDWARE FUNCTIONS OF PC-8401BM

### LCD

This is the 80 column by 16 line screen,

### BATTERY CASE

Put four R14 or LR14 batteries or 4 rechargeable NiCad batteries in here

Warm Boot from the MENU is performed by typing **STOP** or **CTRL C**. Be sure to perform a Warm Boot immediately after a floppy disk is replaced.

### ALTERNATE CHARACTER KEY

With this key down and locked, the keyboard can be used to input Greek and graphic letters. (Refer to alternate character diagram on the previous page).

### SLEEP INDICATOR

The indicator blinks continuously in the sleep mode.

### LOW BATTERY INDICATOR

When using battery power, replace batteries if the indicator lights up.

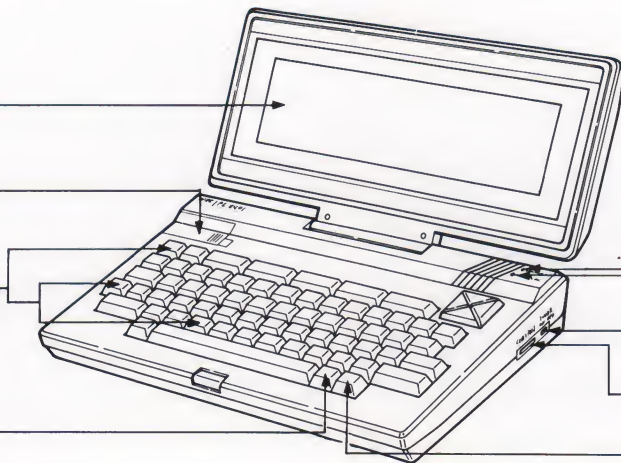
### POWER SWITCH

### CONTRAST ADJUSTMENT KNOB

LCD contrast adjustment.

### NUMERIC KEY (Integrated Key Pad)

With this key down and locked, 4, 5, 6, 1, 2, 3 and 0 are input when U, I, O, J, K, L or M key is typed, respectively.





#### DC IN

Plug AC adapter, PC-8471BM-01, in here.

#### RESET

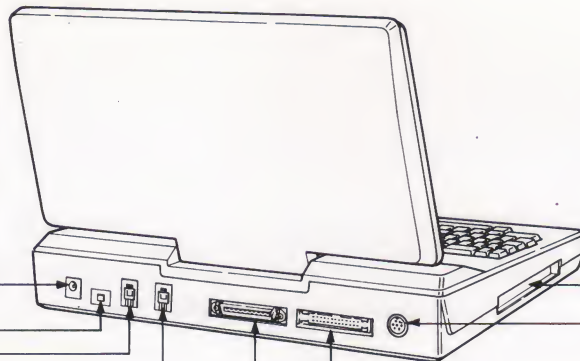
When power is initially turned ON, or when each device is plugged in or removed from the system slot, the RESET button must be pushed. This operation is called a PC-8401BM RESET.

#### LINE

Connect the telephone system cable here, when using built-in modem.

#### PHONE

Connect the phone cable here to the telephone when using the internal modem.



#### SYSTEM SLOT

RAM Cartridge and CRT/Disk Adapter are connected here.

#### CMT

Connect a data recorder here.

#### PRINTER

Connect a parallel printer here.

#### RS-232C

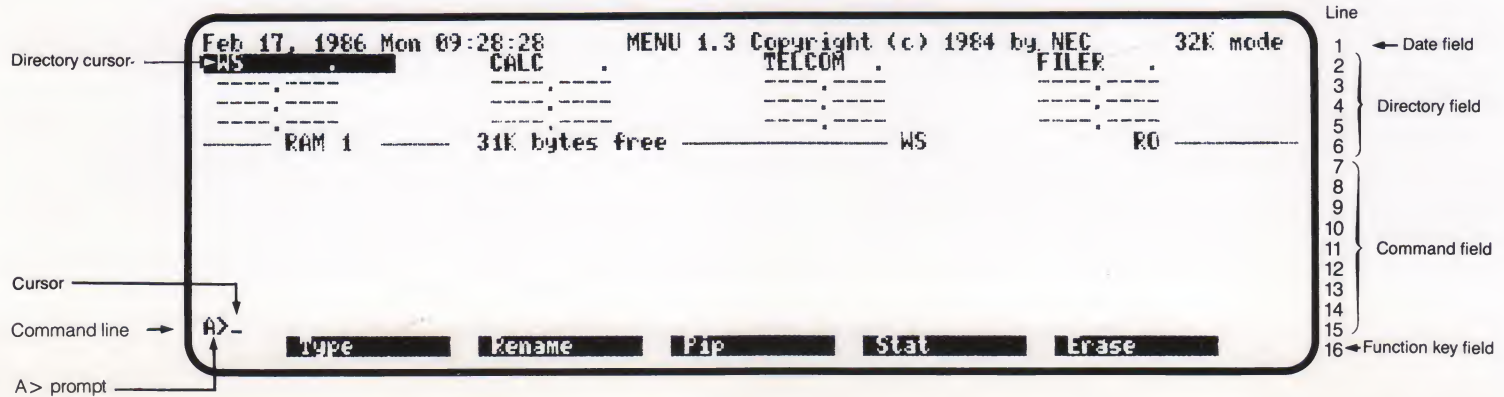
Connect a serial printer, an external modem or directly connect to another computer here.

## 2. MENU

The MENU of the PC-8401BM is its easy way to inform you of what files are stored on its RAM disks or micro floppy disks. The MENU provides a visual interface for easy operation of the PC-8401BM.

Besides the four software programs built-into the ROM of the PC-8401BM, an operating system, CP/M, is also in the PC-8401BM ROM. CP/M commands are executed from the MENU for a friendly method of computer operation.

### LCD SCREEN LAY-OUT — THE MENU.



## MENU KEY OPERATIONS

Some of the key operations in the PC-8401BM MENU can be performed in more than one way. The alternative method is listed below the main method in parentheses.



(SPACE)

Moves the directory cursor to select a filename on the directory field.



(CTRL M)

The return key can be used in several ways.

1. Moves the files selected by the directory cursor to the command line.
2. Input of this key again executes the file on the command line.
3. Executes a command or program typed in from the keyboard.

INS/DEL

(CTRL H)

Deletes the previous keystroke from the command line.

STOP

(CTRL C)

Warm Boot. Be sure to perform a warm boot when swapping floppy disks.

CTRL L

Clears the command field screen. Works only when no characters are typed on the command line.

CTRL U

Cancels a command line and moves the cursor to the next line. To return to the A> prompt, must be followed by CTRL L or CTRL C.

CTRL P


Printer echo ON/OFF toggle switch. Printer can also be turned OFF by CTRL C.

CTRL S


Temporarily stops the display on the screen. Program execution resumes when CTRL S is typed again.

## VIEWING THE DIRECTORY FIELD FROM THE MENU

The directory field can display 16 filenames at one time. If you're storing files on either the internal RAM disk or an external RAM disk, you can save a maximum of 31 files. If you're storing files on the micro floppy disk drive, you can save a maximum of 128 files.

If more than 16 files are saved on the current logged drive, you must scroll the directory field to view all the files. Use  or SPACE to scroll the directory field.

## FUNCTION KEY COMMANDS

Most of these commands are executed by typing the function key and then . Some may require arguments.

### Main Function Keys and Sub Function Keys

Type	<b>f-1</b>		
Rename	<b>f-2</b>		
Pip	<b>f-3</b>		
Stat	<b>f-4</b>		
Erase	<b>f-5</b>		
Key	<b>f-6</b>		
Option	<b>f-7</b>		
		Time	<b>f-1</b>
		Power	<b>f-2</b>
		Set IPL	<b>f-3</b>
		Mode	<b>f-4</b>
		Screen	<b>f-5</b>
		Wakeup	<b>f-6</b>
		Sleep	<b>f-7</b>
		Printer S/P	<b>f-6</b>
		Termtype	<b>f-9</b>
		Exit	<b>f-10</b>
Print	<b>f-8</b>		
Submit	<b>f-9</b>		
Format	<b>f-10</b>		

## Function Key Command Summary

### Type **f-1**

Type filename. EXT

Display ASCII file from current disk onto the screen

Type d:filename. EXT

Display ASCII file from designated disk onto the screen

### Rename **f-2**

Ren(ame)newname.EXT = oldname.EXT

Rename file on current disk

Ren(ame)d:newname.EXT = oldname.EXT

Rename file on designated disk

### Pip **f-3**

Pip d: = s:filename.EXT

Copy named file from s: disk to d: disk

Pip d:newname.EXT = s:oldname.EXT

Copy & change filename from s: disk to d: disk

Pip d: = s: \*.\*

Copy all files from s: disk to d: disk

Pip newfile.EXT = file1.EXT, file2.EXT

Join file1.EXT and file2.EXT and copy to the named newfile.EXT

Pip cas: = filename.EXT

Copy filename.EXT to cassette tape at 1200 baud

Pip cas1: = filename.EXT

Copy filename.EXT to cassette tape at 1200 baud

Pip cas2: = filename.EXT

Copy filename.EXT to cassette tape at 600 baud



Pip d: = cas1 \*.\* \*

Load all files on cassette tape to designated disk at 1200 baud (stop by typing **STOP**).

Pip /v cas: = \*.\* \*

Verify that all files on cassette tape are the same as the current disk files they were copied from.

**Stat** **f-4**

Stat (d:)

Display status (R/W or R/O) and available disk space of designated disk and the currently logged disk.

Stat (d:) filename. EXT

Display the size and status of filename.EXT

Stat (d:)\*.\*

Display the size and status of all files on the designated disk.

Stat R/O

Change designated disk to Read-Only status.

Stat filename.EXT \$R/O

Change named file to Read-Only status.

Stat filename.EXT \$R/W

Change named file to Read-Write Status.

**Erase (can use all wild cards)** **f-5**

Era(se) filename. EXT

Erase named file on current disk.

Era(se) \*.\* \*

Erase all files on current disk.

Era(se) \*.\*.EXT

Erase all files with designated extension.

Era(se) d:filename.EXT

Erase all files on designated disk with designated extension.

Era(se) filename. \*

Erase all files with designated filename on current disk.

**Key** **f-6**

Turn ON/OFF function key display. Key command is a toggle switch.

**Print** **f-8**

Print filename.EXT

Print d:filename.EXT

**Submit** **f-9**

Submit (d:)filename

Printout named file from current disk.

Printout named file from designated disk.

Execute commands in the designated submit file. Like batch processing. Submit file should have "SUB" extension.

**Format**

Format the specified disk (dis: RAM disks, micro floppy disks). Operate according to the message.

**Option** **f-7**

10 optional subcommands are available under this command.

**TIME** **OPT>** **f-1**

Set the new date, day of the week and time.

**Power** **OPT>** **f-2**

Set the "Auto Power Off Time" interval.

**SetIPL** **OPT>** **f-3**

Set IPL command (initial program load).

**Mode** **OPT>** **f-4**

Change CP/M mode to 32K or 64K.

**Screen** **OPT>** **f-5**

Select display console, CRT or LCD.

**Wakeup** **OPT>** **f-6**

Set "Wake up" time.

**Sleep** **OPT>** **f-7**

Enter sleep mode.

**Printer S/P** **OPT>** **f-8**

Select either serial or parallel printer.

**Termtype** **OPT>** **f-9**

Select either VT100 terminal emulation or SOROC IQ terminal emulation.

**Exit** **OPT>** **f-10**

Exit from Option command level.

### 3. PERIPHERALS

The following tables list NEC peripherals compatible with the PC-8401BM and any special cabling or hardware requirements.

#### PERIPHERALS COMPATIBLE WITH PC-8401BM

#### Special Requirements:

##### Power Supply

PC-8471BM-01	AC Adapter for PC-8401BM	Optional
PC-8271BM-06	AC Adapter for PC-8441A	Included with PC-8441A.

##### Disk Unit

PC-8431B*	Micro Floppy Disk Unit	CRT/Disk Adapter (PC-8441A**) or Disk Adapter (PC-8433A) is necessary. Utility disk (PC-8434B) and cable (PC-8498A) are included with the PC-8431B.
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##### RAM Cartridge

PC-8406A	32K byte RAM cartridge	No special requirements.
PC-8407A	128K byte RAM cartridge	No special requirements.

##### ROM Cartridge

PC-8405A	32K byte ROM Cartridge	Optional ROM should be inserted into this cartridge.
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##### Date Recorder

PC-8281A	Battery Operated Portable Data Recorder	Cable (PC-8493A) included with the PC-8401BM.
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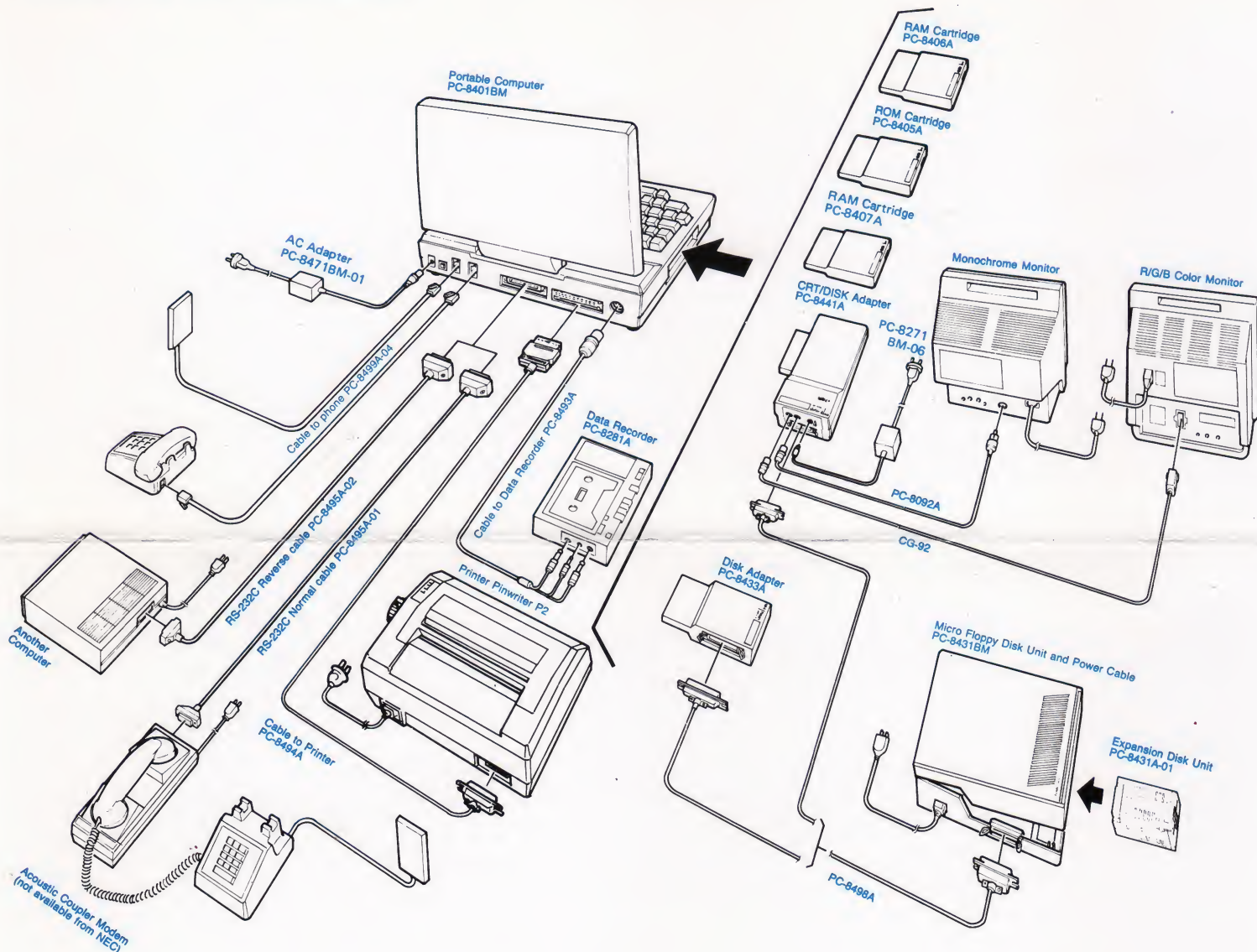
##### NEC Parallel Printers

Pinwriter P2	80 Column Dot Matrix Printer	Cable (PC-8494A) necessary.
Pinwriter P3	136 Column Dot Matrix Printer	
Pinwriter P5	State-of-the-art Matrix Printer	
PC-8221A	Battery Operated Thermal Printer	Cable included with PC-8221A

\* The Micro Floppy Disk Unit PC-8431B is packed in the carton with an AC power cable. This combination is sold as model No. PC-8431BM.

\*\* The CRT/Disk Adapter PC-8441A is packed in the carton with the AC Adapter PC-8271BM-06. This combination is sold as model No. PC-8441BM.

## CONNECTION OF PERIPHERALS







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### NEC SpinWriter Series Parallel Interface Printers

Model 3530	3500 Series Letter Quality Printer	}	Cable (PC-8494A) necessary
Model 3550	IBM Compatible 3500 Series Letter Quality Printer		
Model 2030	2000 Series Letter Quality Printer		
Model 2050	IBM Compatible 2000 Series Letter Quality Printer		

### NEC Monochrome Monitors

JB-902M	9 inch green	}	CRT/Disk Adapter (PC-8441A) required. Cable (PC-8092A) included with PC-8441A.
JB-1201M	12 inch green		
JB-1205M	12 inch amber		
JB-1270ME	12 inch green with dark bulb		
JB-1275ME	12 inch amber with dark bulb		

### NEC R/G/B Color Monitors (Recommended Models)

JC-1203DHR	12 inch high resolution	}	CRT/Disk Adapter (PC-8441A) and Cable (CG-92) required.
APC-H1311	14 inch high resolution		

### For Telecommunications

PC-8495A-01	RS-232C Cable (normal)	}	Optional Included with the PC-8401BM.
PC-8495A-02	RS-232C Cable (reverse)		
PC-8499A-04	Phone Cable		



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## 4. WORDSTAR-TO-GO

NOTE: Be sure the file storage area you are using is formatted if you are using your PC-8401BM for the first time. Refer to Chapter 2.5 of the *PC-8401BM User's Guide* for this information.

### STARTING WORDSTAR-TO-GO — OPENING AND SAVING A FILE

#### OPEN A FILE


WordStar-To-Go is stored under the filename WS in the directory field of the PC-8401BM MENU. Move the directory cursor over the name WS using  or **SPACE**. Then type . The WS string will appear following the A> prompt on the command line.

If  is typed again, the WordStar-To-Go program will start. To open a document file from within the program, type **D** at the OPENING MENU and enter a filename at the prompt NAME OF FILE TO EDIT? A filename is 1-8 letters or digits followed by an optional period and an optional 1-3 letter extension.

To open a non-document file, type **N** at the OPENING MENU and enter a filename at the prompt NAME OF FILE TO EDIT?.

A file can be opened on a drive other than the currently logged drive by typing a drive designator before the filename.

A file can be opened by typing the filename on the command line next to the WS string.

If the file has a .DOC extension you can open the file directly by placing the directory cursor over the filename and typing  twice. WordStar-To-Go will start and the selected file will open automatically.

#### SAVE A FILE

To save a file and resume working in the same file, type **CTRL K S**. The file is saved and the file stays open. To move the cursor to the position prior to saving the file, type **CTRL Q P**.

To save a file and return to the OPENING MENU, type **CTRL K D** or **F-10**.


To save a file and return to the PC-8401BM MENU, type **CTRL K X**.

To exit a file without saving any changes, type **CTRL K D**.


### WORDSTAR-TO-GO MENUS

#### THE OPENING MENU

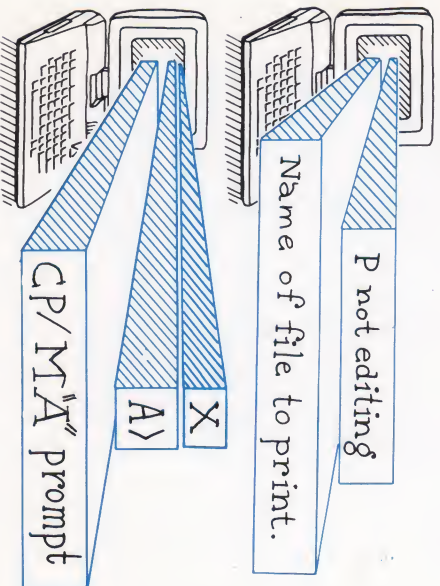
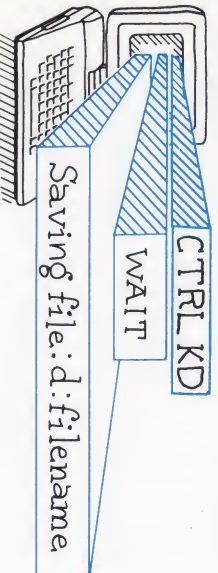
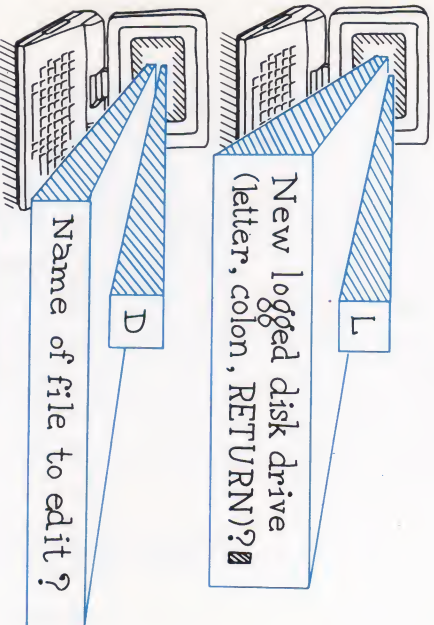
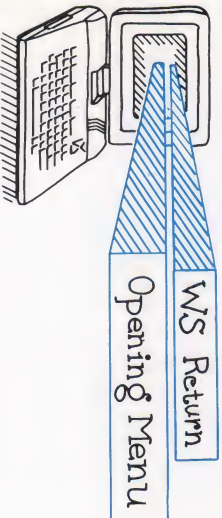
The first menu to appear in the WordStar-To-Go program is the OPENING MENU.

To open a new or existing file, type **D** or **N**, then type at the filename the prompt NAME OF FILE TO EDIT? and .

To change the currently logged drive, type **L**. Use **CTRL K L** to change the logged drive while editing.

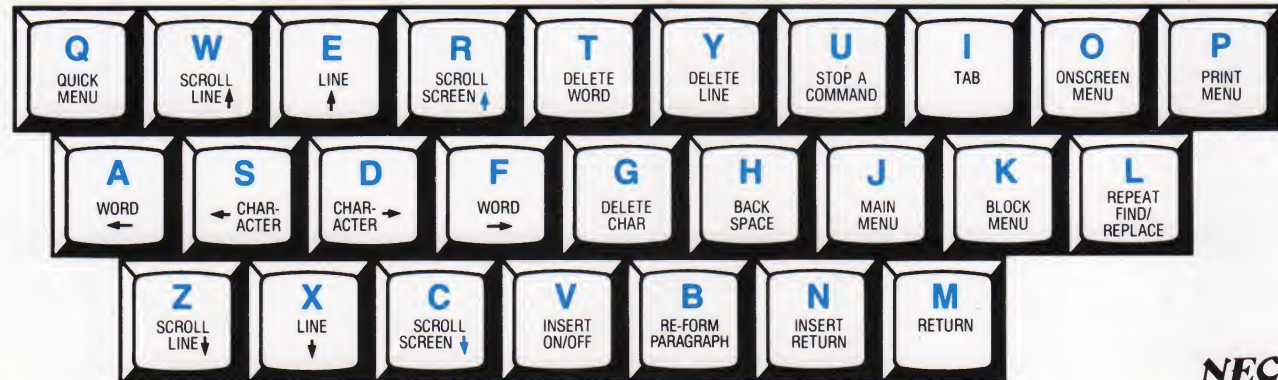
To print a file, type **P** then type the filename to print at the prompt NAME OF FILE TO PRINT? and . Or type **CTRL K P** to print one file while editing another.

# A QUICK LOOK AT WORDSTAR-TO-GO



WORDSTAR-TO-GO™

## MAIN MENU COMMAND KEYS



**NEC**



# MENU MAP

## OPENING MENU



## MAIN MENU



## BLOCK MENU



## PRINT MENU



## ONSCREEN MENU



## QUICK MENU





To stop printing from the OPENING MENU, type **P**. If printing a file while editing another, type **CTRL K P**. Choose from the display either **Y** to abandon printing, **N** to resume printing or **CTRL U** to hold. To resume from hold, type **P** or **CTRL K P** if editing.

To delete a file, type **Y** then the name of the file to delete at the prompt NAME OF FILE TO DELETE? and type **↵**. To delete a file while editing another, type **CTRL K J**.

To copy a file, type **O** then the filename at the prompt NAME OF FILE TO COPY FROM? then type **↵**. The prompt NAME OF FILE TO COPY TO? will be displayed. Type a new or existing filename and type **↵**. If a new filename is specified, the new file is copied with the new filename. If an existing filename is specified, the new file is copied over the existing file.

To choose a printer for operation with WordStar-To-Go, type **C**. A printer selection list will be displayed. Select a printer or printer type from the list and type the selection letter next to the prompt NEW PRINTER (letter, RETURN)? and type **↵**.

To return to the MENU of the PC-8401BM and the A> prompt type **X**.

### THE MAIN MENU

After a WordStar-To-Go file is opened, text can be entered immediately. There are no menus displayed thereby providing a larger display area for typing your document. Menus are available for display by typing specific control commands.

To display the MAIN MENU, type **CTRL J**. The MAIN MENU displays commands for scrolling the screen, cursor movement commands, deleting text commands, miscellaneous commands and commands to display the other menus.

### THE BLOCK MENU

To display the BLOCK MENU while your document is on the screen, type **CTRL K** then type **CTRL J**. The BLOCK MENU displays the commands for controlling blocks of text or entire files.

### THE ONSCREEN MENU

To display the ONSCREEN MENU while your document is on the screen, type **CTRL O** then type **CTRL J**. The ONSCREEN MENU displays the commands for formatting text.

### THE PRINT MENU

To display the PRINT MENU while your document is on the screen, type **CTRL P** then type **CTRL J**. The PRINT MENU displays the commands for designing the printed page including special effects such as boldface, underline and strikeover.

### THE QUICK MENU

To display the QUICK MENU while your document is on the screen, type **CTRL Q** then type **CTRL J**. The QUICK MENU displays the commands for rapid movement of the cursor, instant delete commands and the commands for finding and replacing text.



## TYPING AND EDITING YOUR DOCUMENT

### REPEAT

To repeat a keystroke or command, type **CTRL Q Q** then the keystroke or command.

Type **SPACE** to stop.

### INSERT

If INSERT is displayed on the status line, characters and numbers can be typed into an existing file at the cursor position. The characters to the right of cursor will move to the right. If INSERT is not displayed on the status line, new text will replace existing text. Turn INSERT on or off by typing **CTRL V**.

### HARD CARRIAGE RETURN

Typing **↵** inserts a hard carriage return and moves the cursor to the beginning of the next line. When INSERT is on, any text to the right of the cursor moves to the next line.

**CTRL N** inserts a hard carriage return and leaves the cursor in the current position.

### CURSOR MOVEMENT

The cursor can be moved around the screen using **⤿** or by typing **CTRL** and another key.

To move the cursor one position to the right, type **CTRL Q** or **→**.

To move the cursor one position to the left, type **CTRL S** or **←**.

To move the cursor up one line, type **CTRL E** or **↑**.

To move the cursor down one line, type **CTRL X** or **↓**.

To move the cursor one word to the left or to the previous word, type **CTRL A**.

To move the cursor one word to the right or to the next word, type **CTRL F**.

To move the cursor to the beginning of a line, type **CTRL Q S**.

To move the cursor to the end of a line, type **CTRL Q Q**.

To move the cursor to the top of the screen, type **CTRL Q E**.

To move the cursor to the bottom of the screen, type **CTRL Q X**.

To move the cursor to the beginning of a file, type **CTRL Q R** or **F6**.

To move the cursor to the end of a file, type **CTRL Q C** or **F7**.

### DELETE

To delete a character at the current cursor position, type **CTRL G**.

To delete a character to the left of the cursor, type **DEL**.

To delete a word or part of a word to the right of the cursor, type **CTRL T**.

To delete an entire line, position the cursor anywhere on the line and type **CTRL Y**.

To delete a line to the right of the cursor, type **CTRL Q Y**.

To delete a line to the left of the cursor, type **CTRL Q DEL**.



To stop printing from the OPENING MENU, type **P**. If printing a file while editing another, type **CTRL K P**. Choose from the display either **Y** to abandon printing, **N** to resume printing or **CTRL U** to hold. To resume from hold, type **P** or **CTRL K P** if editing.

To delete a file, type **Y** then the name of the file to delete at the prompt NAME OF FILE TO DELETE? and type **↵**. To delete a file while editing another, type **CTRL K J**.

To copy a file, type **O** then the filename at the prompt NAME OF FILE TO COPY FROM? then type **↵**. The prompt NAME OF FILE TO COPY TO? will be displayed. Type a new or existing filename and type **↵**. If a new filename is specified, the new file is copied with the new filename. If an existing filename is specified, the new file is copied over the existing file.

To choose a printer for operation with WordStar-To-Go, type **C**. A printer selection list will be displayed. Select a printer or printer type from the list and type the selection letter next to the prompt NEW PRINTER (letter, RETURN)? and type **↵**.

To return to the MENU of the PC-8401BM and the A> prompt type **X**.

### THE MAIN MENU

After a WordStar-To-Go file is opened, text can be entered immediately. There are no menus displayed thereby providing a larger display area for typing your document. Menus are available for display by typing specific control commands.

To display the MAIN MENU, type **CTRL J**. The MAIN MENU displays commands for scrolling the screen, cursor movement commands, deleting text commands, miscellaneous commands and commands to display the other menus.

### THE BLOCK MENU

To display the BLOCK MENU while your document is on the screen, type **CTRL K** then type **CTRL J**. The BLOCK MENU displays the commands for controlling blocks of text or entire files.

### THE ONSCREEN MENU

To display the ONSCREEN MENU while your document is on the screen, type **CTRL O** then type **CTRL J**. The ONSCREEN MENU displays the commands for formatting text.

### THE PRINT MENU

To display the PRINT MENU while your document is on the screen, type **CTRL P** then type **CTRL J**. The PRINT MENU displays the commands for designing the printed page including special effects such as boldface, underline and strikeover.

### THE QUICK MENU

To display the QUICK MENU while your document is on the screen, type **CTRL Q** then type **CTRL J**. The QUICK MENU displays the commands for rapid movement of the cursor, instant delete commands and the commands for finding and replacing text.

## MARKING AND MOVING TEXT

### PLACE MARKERS

To mark a position in the text, move the cursor to the location to be marked and type **CTRL K** then a number from 0 to 9.

To move to a marked location, type **CTRL Q** and the marker number.

### MARKING A BLOCK

To move a block of text within a file or to another file, the beginning and the end of the block must be defined.

To mark the beginning of a block, move the cursor to the appropriate location and type **CTRL K B** or **f-1**.

To mark the end of a block, move the cursor to the appropriate location and type **CTRL K K** or **f-2**.

To change the position of a block marker, move the cursor to the new location and type the marker again.

When a block is marked, it is highlighted in inverse video. To hide the highlighted area and remove the markers, type **CTRL K H**. To restore the highlighted, type **CTRL K H** again. Another way to hide the markers is to move the cursor to the position to the right of the marker and type **CTRL K B** or **f-1** for the beginning marker or **CTRL K K** or **f-2** for the end marker.

### MOVING A BLOCK

To move a block of text, mark the block then move the cursor to the appropriate position within the text where you want the block moved, and type **CTRL K V** or **f-3**.

### DELETE A BLOCK

To delete a block of text, mark the block then type **CTRL K Y** or **f-5**.

### COPY A BLOCK

To copy a block of text in the same file, mark the block then move the cursor to the appropriate position where you want the block copied, and type **CTRL K C** or **f-1**.

To copy a block of text to an existing file, follow these steps:

1. Mark the block and type **CTRL K W**.
2. Type in the name of a NEW, temporary file in response to the prompt NAME OF FILE TO WRITE MARKED TEXT ON? and type **↵**. A new file with the block of text will be created. If the name of an existing file is typed in response to the prompt, the existing file will be written over by the block.
3. Close the original file and open the file that the block of text is to be copied into. Position the cursor at the appropriate location in the text where you want the block to appear and type **CTRL K R**.
4. Type in the name of the NEW, temporary file in response to the prompt NAME OF FILE TO READ? and type **↵**. The new block will be read from the file and inserted into the existing file.

## FINDING AND REPLACING TEXT

You can locate, locate and change or locate and delete any word or phrase (string of characters) in your text using the find and find-and-replace commands.

### FIND WORDS AND PHRASES

To find a word or phrase in the text, type **CTRL Q F** or **F-8**. The prompt **FIND?** will be displayed. Type the word or phrase to be found (up to 30 characters) then type **ESC**. The cursor will move to the first character of the first occurrence of the designated string. To move to the next occurrence of the desired string, type **CTRL L**. When there are no occurrences or no other occurrences to be found in the text, the message "NOT FOUND (your string) Press ESC Key" will be displayed. Type **ESC** and the cursor will appear at the end of the text. Type **CTRL Q V** to return the cursor to the previous position in the text before the last **CTRL L** was typed.

### FIND AND REPLACE

To find and replace text, type **CTRL Q A** or **F-9**. The prompt **FIND?** will be displayed. Type the existing string (up to 30 characters) and type **↵**. The prompt **REPLACE WITH?** will be displayed. Type the new string (up to 30 characters) and type **ESC**. The cursor will move to next occurrence of the string and the prompt **REPLACE (Y/N):** will be displayed for approval of the replacement. Type **Y** to perform the replacement. If you type **N**, the cursor will move to the end of the

string. Type **CTRL L** to repeat the find-and-replace command. Type **CTRL Q V** to return the cursor to the previous position in the text.

### OPTIONS IN FIND COMMANDS

Six options help you define the scope of your find and find-and-replace operations. To choose one of the options, type **↵** instead of **ESC** after replying to the prompts.

If you are using the find command, type **↵** instead of **ESC** after the **FIND?** prompt and the entry of the string.

If you are using the find-and-replace command, type **↵** instead of **ESC** after the prompt **REPLACE WITH?** and the entry of the string. After typing **↵**, the prompt **OPTIONS (? FOR INFO)** will be displayed. Type **?** and type **↵**. The options will be displayed. Press **ESC** if you decide against using options.

### NUMBER OPTION

Type a number.

If you are using the find-and-replace command, enter any whole number and you will locate the specified number of occurrences of your string.

If you are using the find command, enter any whole number and you will locate that occurrence of your string.

### SEARCHING BACKWARDS

Type **B** to have WordStar-To-Go search backwards to find the string in the file.



## WHOLE WORDS

Type **W** to search for whole words only.

## UPPERCASE OR LOWERCASE

Type **U** to search for both uppercase and lowercase occurrences of your string.

## NO APPROVAL NEEDED

Type **N** to replace occurrences of your string automatically.

## GLOBAL REPLACEMENT

Type **G** to search the whole text from beginning to end.

## VARYING CHARACTERS IN FIND STRINGS

Wild card characters can be used for variations in your string with the find and find-and-replace commands. Use them as substitute characters after the prompt FIND?

## ANY CHARACTER

To locate strings with any single character in place of the wild card, type **CTRL P CTRL A** as the single character.

## ANY SYMBOL

To locate strings with any character not a letter or digit in place of the wild card, type **CTRL P CTRL S** as the character.

## OTHER THAN

To enter an exception into your string, type **CTRL O x** where x is the character you want ignored.

## FORMATTING TEXT ON THE SCREEN

### WORD WRAP

To turn word wrap on or off, type **CTRL O W**.

### JUSTIFICATION

To turn justification on or off, type **CTRL O J**.

### LINE SPACING

To specify spacing between lines, type **CTRL O S**. The prompt LINE SPACING (1-9) will appear. Type a number to specify spacing between lines.

### MARGINS

To set a new left margin, type **CTRL O L**. The prompt LEFT MARGIN COLUMN (ESC for cursor col)? will be displayed. Specify a column number or type **ESC** for the current column position.

To set the right margin, type **CTRL O R**. The prompt RIGHT MARGIN COLUMN (ESC for cursor col)? will be displayed. Specify a column number or type **ESC** for the current column position.

To release current margins, type **CTRL O X**.

To center text between the currently set margins, type **CTRL O C**.

### PARAGRAPHS

To re-form a paragraph within the specified margins, type **CTRL O**.

### TABS AND INDENTATION

To turn off variable tabbing, type **CTRL O V**.



**SETTING TABS**

To set a tab, type **CTRL O I**. The prompt SET TAB AT COLUMN (ESC for cursor col)? will be displayed. Type in a number or type **ESC** for the current cursor column.

To clear a tab, type **CTRL O N**. The prompt CLEAR TAB AT COLUMN (ESC for cursor column; A for all)? will be displayed. Type a number, **ESC** for the current cursor column or **A** to clear all tabs.

**CHANGING THE SCREEN DISPLAY**

To set the ruler line equal to another line in your text, position the cursor anywhere on the desired line and type **CTRL O F**. The ruler line will change to the same margins as in the text line.

To turn the ruler line on or off, type **CTRL O T**.

To turn the display of page breaks on or off, type **CTRL O P**.

**DESIGNING THE PRINTED PAGE****SPECIAL EFFECTS**

The following special effects control printer operation and can be imbedded in the text.

**UNDERScore**

To underscore text, type **CTRL P S** before and after any letters, words, or phrases that you want underlined.

**DOUBLE STRIKE**

To double strike characters, type **CTRL P O** before and after the words you want emphasized.

**BOLDFACE**

To boldface text, type **CTRL P B** before and after the words you want emphasized with boldfaced print.

**SPECIAL CHARACTERS**

To include Greek characters in your text, type **CTRL P Y** and the keyboard character corresponding to the special character. Refer to the *WordStar-To-Go Reference Manual* for a table of special characters.

**STRIKE OUT**

To cross out characters with hyphens but still leave them readable, type **CTRL P X** before and after the characters to strike out.

**PRINT OVER A CHARACTER**

To instruct the printer to backspace and print a character where one already exists, type **CTRL P H** immediately after the character to be printed over then type the character to print.

**PRINTING OVER A LINE**

to omit a line feed and print over the preceding line, type **CTRL P ↵** at the end of the line you want to print over.

## SUBSCRIPTS

To print characters one-half line feed below a given line, type **CTRL P V** before and after the characters you want in the subscript.

## SUPERSCRIPTS

To print characters one-half line feed above a given line, type **CTRL P T** before and after the characters you want in the superscript.

## CHARACTER PITCH

The normal print mode is pica (10 character per inch).

## ELITE PRINT

To select elite pitch (12 characters per inch) for printing, type **CTRL P A**. To return to the normal print mode, type **CTRL P N**.

## CONDENSED PRINT

To select condensed print mode for printing, type **CTRL P Q**. To return to the normal print mode, type **CTRL P W**.

## ENLARGED PRINT

To select the enlarged elite print mode for printing, type **CTRL P E**. To return to the normal print mode, type **CTRL P R**.

## ENLARGED ELITE PRINT

To select the enlarged elite print mode for printing, type **CTRL P A** then type **CTRL P E**. To return to the normal print mode, type **CTRL P R** then type **CTRL P N**.

## ENLARGED CONDENSED PRINT

To select the enlarged condensed mode for printing, type **CTRL P Q** then type **CTRL P E**. To return to the normal print mode, type **CTRL P R** then type **CTRL P W**.

## SPACES

To keep two words together when you re-form a paragraph, type **CTRL P Q** in place of the space between the two words.

## VERTICAL PAGE

The dot commands for the vertical page can be put anywhere in your file between lines of text. Page break commands affect the page break display on your screen. Putting them at the beginning of your document lets you see the page breaks as they occur in your printed document. If you put the commands elsewhere in your text, you will see a warning message and a question mark in the flag column warning you that you cannot see the page break effect on the screen.

## PAGE LENGTH

To specify page length, type **.PLn** where *n* is the total number of lines on the page at six lines to the inch. The default is 66 lines for 11-inch paper (.PL66). For example, 14-inch paper length would use the number 84 (.PL84).

### BLANK LINES AT THE TOP OF THE PAGE (TOP MARGIN)

To specify the number of blank lines at the top of the page (top margin), type **.MTn** where *n* is the specified number of blank lines. The default value is three lines and includes the page heading and the heading margin.

### BLANK LINES AT THE BOTTOM OF THE PAGE (BOTTOM MARGIN)

To specify the number of blank lines below your text at the bottom of the page (bottom margin), type **.MBn** where *n* is the specified number of blank lines. The default is eight blank lines and includes the page number or footing and the footing margin.

### HEADING MARGIN

To specify the number of blank lines from the page heading to the body of the text, type **.HMn** where *n* is the number of blank lines. The default is two blank lines.


### FOOTING MARGIN

To specify the number of blank lines from the body of the text to the page number or footing, type **.FMn** where *n* is the number of blank lines. The default of two blank lines is unaffected even when you change the bottom margin.


### HEADINGS AND FOOTINGS

Headings and footings are single lines of text included in the top and bottom margins. You only need to enter these dot commands once at the start of the file and your headings and footings will appear on every page.

#### HEADING

To insert a single line of heading within the top margin of the page, type **.HE** beginning in the first column, followed by a space (optional), then the heading text. To cancel a heading, type **.HE**  at the top of the page to be without a heading.

#### FOOTING

To insert a single line of footing within the bottom margin below the text, type **.FO** beginning in the first column, followed by a space (optional), then the footing text. To cancel a footing, type **.FO**  at the top of the first page to be without a footing.

To print headings and footings for even-numbered pages on the left and for odd-numbered pages on the right, type **CTRL P K** after the heading or footing dot command.

### PAGE BREAKS

WordStar-To-Go allows you to decide where one page stops and the next begins.



## PAGE BREAK

To insert a page break wherever you want it, type **.PA** and press **↵**.

## CONDITIONAL PAGE BREAK

To insert a conditional page break, type **.CP $n$**  where  $n$  is the next number of lines that you want to print together. This command will keep the specified lines together and not allow an automatic page break to separate them.

## PAGE NUMBERING

The default for page numbering options is sequential numbers printed in column 33.

## OMIT PAGE NUMBERS

To omit page numbers, type **.OP** then **↵** beginning in the first column at the top of your document. This command is unnecessary if you use a footing.

## RESTORE PAGE NUMBERS

To restore page numbers after you have used the command **.OP** to omit them, type **.PN**. Use **.Pi $n$**  to set the page number at  $n$ . WordStar-To-Go automatically puts sequential numbers on subsequent pages.

## PAGE NUMBER COLUMN

To specify the column number the page number will appear in at the bottom of the page, type **.PC $n$**  where  $n$  specifies the column number.

## PRINTER PERFORMANCE

WordStar-To-Go can control the mechanical aspects of printing, such as pauses and movement of the print head.

## PAGE OFFSET

To specify page offset, type **.PO $n$**  where  $n$  is the specified column where the print head actually begins to print.

## STOPPING AND STARTING

You can start and stop your printer with its own toggle switches or you can control it from the OPENING MENU with **P** or from the MAIN MENU with **CTRL K P**.

## PAUSE THE PRINTER

To pause the printer anywhere in the printing of your file, type **CTRL P C** in the middle of a line or several times in the same line. When you print the document you will see this message above the OPENING MENU: PRINT PAUSED PRINTING A:FILENAME not editing. On the OPENING MENU you will see: P CONTINUE PRINT. To resume printing, type **P**.

## FIXED TAB

To shift to fixed tabbing, type **CTRL P I**, the ASCII fixed-tab character.

## FORM FEED

To roll the paper up the distance of the form being printed, type **CTRL P L**.



**COMMENT LINES**

To add lines of text that will not print, type **. .** (two dots) beginning in column 1 and then type your comment.

**IGNORE**

To add a line of text that will be ignored at print time, type **. I G** beginning in column 1 and then type your comment.

**SUMMARY OF MAJOR DOT COMMANDS**

Command	Function	Default
<b>.PLn</b>	Paper Length	66 (11 in)
<b>.MTn</b>	Margin at Top	3 (1/2 in)
<b>.MBn</b>	Margin at Bottom	8 (1-1/3 in)
<b>.POn</b>	Page Offset	8 (4/5 in)
<b>.PA</b>	New Page (page break)	
<b>.OP</b>	Omit Page Numbers	
<b>.PNn</b>	Page Number	page no.1
<b>.HMn</b>	Header Margin	2 (1/3 in)
<b>.HEtext</b>	Header	
<b>.FMn</b>	Footer Margin	2 (1/3 in)
<b>.FOtext</b>	Footer	page number centered
<b>.CWn</b>	Character Width	12 (10 pitch)
<b>..text</b>	Comment Line	

## FUNCTION KEYS

The PC-8401BM has five function keys, labeled **f.1** through **f.5**. When **SHIFT** and any of these keys (f1 through f5) is typed, five additional function keys are available. The function keys produced by **SHIFT** and **f.1** and **f.5** are referred to as function keys **f.6** through **f.10**. These keys are programmed for the commands listed below:

## PC-8401BM WordStar-To-Go Function Keys

Keystroke(s)	Key	Command	Function
<b>f.1</b>	<b>f.1</b>	<b>^KB</b>	Mark or hide block beginning
<b>f.2</b>	<b>f.2</b>	<b>^KK</b>	Mark or hide block end
<b>f.3</b>	<b>f.3</b>	<b>^KV</b>	Move block
<b>f.4</b>	<b>f.4</b>	<b>^KC</b>	Copy block
<b>f.5</b>	<b>f.5</b>	<b>^KY</b>	Delete block
<b>SHIFT f.1</b>	<b>f.6</b>	<b>^QR</b>	Move cursor to file beginning
<b>SHIFT f.2</b>	<b>f.7</b>	<b>^QC</b>	Move cursor to file end
<b>SHIFT f.3</b>	<b>f.8</b>	<b>^QF</b>	Find a string
<b>SHIFT f.4</b>	<b>f.9</b>	<b>^QA</b>	Find and replace
<b>SHIFT f.5</b>	<b>f.10</b>	<b>^KD</b>	Save file, return to Opening Menu

## SUMMARY OF WORDSTAR-TO-GO COMMANDS

### OPENING MENU COMMANDS

At the Opening Menu		Up one line	^E
Change logged disk drive	L	Down one line	^X
Start or stop printing	P	Right one word	^F
Copy a file	O	Left one word	^A
Delete a file	Y	To top of screen	^QE
Choose a printer	C	To bottom of screen	^QX
Exit to the operating system	X	To top of file	^QR
To open a file		To end of file	^QC
Open a document file	D	To right end of line	^QD
Open a non-document file	N	To left end of line	^QS
Main Menu (After D or N)	^J	To top of block	^QB
OTHER MENUS		To end of block	^QK
(From Main Menu or ^_ ^J)		To position before previous command	^QP
Block Menu	^K	To start of last find/replace	^QV
Onscreen Menu	^O	Find/replace text again	^L
Print Menu	^P	To marker 0-9	^Q0-9
Quick Menu	^Q		

### SCROLL (MOVE SCREEN)

Up one line	^W
Down one line	^Z
Up one screen	^R
Down one screen	^C

### MOVE CURSOR

Right one character	^D
Left one character	^S

### MISCELLANEOUS

Interrupt command	^U
Repeat command continuously until space bar is pressed	^QQ ^_

### FORMAT

Variable tabbing ON/OFF	^OV
Center text	^OC
Set left margin	^OL
Set right margin	^OR
Release margins	^OX
Set margins and tabs from text line	^OF
Set tabs	^OI
Clear tabs	^ON
Justification ON/OFF	^OJ
Set line spacing	^OS
Page break display ON/OFF	^OP
Ruler display ON/OFF	^OT
Word wrap ON/OFF	^OW
Re-form paragraph	^B
Move cursor to next tab	^I

### DELETE AND INSERT

Delete character at cursor	^G
Delete character left	DEL
Delete word right	^T
Delete line	^Y
Delete to end of line	^QY
Delete to beginning of line	^QDEL
Delete a block	^KY
Insert ON/OFF	^V
Insert carriage return (blank line)	^N

### SAVE FILES

Save and resume edit	^KS
Save and return to Opening Menu	^KD
Save and exit to system	^KX
Abandon file without saving	^KQ

## FIND AND REPLACE

Find text <sup>^QF</sup>  
 Find and replace text <sup>^QA</sup>  
 Find/replace text again <sup>^L</sup>  
 Cursor to start of last  
 find/replace <sup>^QV</sup>

### Options:

List options ?  
 Find *n* occurrences with <sup>^QA n</sup>  
 Find *nth* occurrence  
 with <sup>^QFn</sup>  
 Search backward B  
 Find whole words only W  
 Ignore case U  
 Replace string without  
 approval N

Search entire file G

### Variable Characters:

Substitute any character <sup>^P^A</sup>  
 Substitute any symbol <sup>^P^S</sup>  
 Substitute any character other  
 than the character x <sup>^Ox</sup>  
 Include carriage return/  
 line feed <sup>^N</sup>

## FILE AND BLOCK OPERATIONS

Mark/hide block beginning <sup>^KB</sup>  
 Mark/hide block end <sup>^KK</sup>  
 Hide/show marked block <sup>^KH</sup>  
 Copy block <sup>^KC</sup>  
 Delete block <sup>^KY</sup>  
 Move block <sup>^KV</sup>  
 Write block into another file <sup>^KW</sup>  
 Read file into document <sup>^KR</sup>  
 Set/remove marker 0-9 <sup>^K0-9</sup>  
 Delete file <sup>^KJ</sup>  
 Change logged disk drive <sup>^KL</sup>  
 Start/stop printing <sup>^KP</sup>

## DESIGN THE PRINTED PAGE

### Use in Pairs:

Boldface <sup>^PB</sup>  
 Double strike <sup>^PD</sup>  
 Underline <sup>^PS</sup>  
 Strikeout <sup>^PX</sup>  
 Subscript <sup>^PV</sup>  
 Superscript <sup>^PT</sup>  
 Special characters <sup>^PY</sup>


### Use Alone:

Strikeover <sup>^PH</sup>

Non-break space <sup>^PO</sup>

\*Phantom space <sup>^PF</sup>

\*Phantom rubout <sup>^PG</sup>

Strikeover line <sup>^P</sup> 

### Layout:

Alternate pitch (Elite) <sup>^PA</sup>

Standard pitch (Pica) <sup>^PN</sup>

### Print modes:

Begin condensed mode <sup>^PQ</sup>

End condensed mode <sup>^PW</sup>

Begin enlarged mode <sup>^PE</sup>

End enlarged mode <sup>^PR</sup>

### Use with .HE (Heading) and .FO (Footing):

Page number £

Print next symbol \

Alternate position of text  
or page number <sup>^PK</sup>

### Others:

Print pause <sup>^PC</sup>

Insert ASCII character for  
8-space tab <sup>^PI</sup>

Insert ASCII character for  
page break <sup>^PL</sup>

## DOT COMMANDS

\*Bidirectional printing  
ON (OFF) .BP1 (0)

\*Microjustification  
ON (OFF) .UJ1 (0)

\*Character width .CWn

Comment (not printed) ..or .IG

Conditional page break .CPn

Footer .FOtext

Header .HEtext

Header margin .HMn

Footer margin .FMn

\*Line height .LHn

Margin at top .MTn

Margin at bottom .MBn

New page (page break) .PA

Omit page number .OP

Set page number .PNn

Set page number column .PCn

\*Subscript/Superscript roll .SRn

Page length .PLn

Page offset .PON

\*May be entered in file but not useful  
unless printed on a letter-quality  
printer controlled by standard  
WordStar.



## WORDSTAR-TO-GO ERROR MESSAGES

The following list contains WordStar-To-Go error messages and a short description of each message.

**!!!**

You are typing too fast. Keystrokes are being lost.

**?**

Incorrect entry of a dot command.

**BAD FILE NAME: A:filename**

The name you entered cannot be accepted by WordStar-To-Go.

**DISK I/O ERROR ON B R(etry), I(gnore), A(bort)**

An operating system error usually indicating an unexpected disk procedure.

**Can't copy a file while printing.**

You are trying to copy (0) a file while printing.

**CAN'T DISPLAY PAGE BREAKS IN A NON-DOCUMENT FILE.**

The command to display page breaks (CTRL OP) has no effect in non-document editing.

**Can't edit .BAK or .\$\$\$file.**

You cannot enter a filename that ends in .BAK or .\$\$\$ using the D or N command from the OPENING MENU.

**\*\*\*ERROR E5: MARKER NOT SET\*\*\* Press ESC Key.**

The marker indicated was not set during current editing.

**\*\*\*ERROR E6: BEGINNING NOT MARKED (OR UNDISPLAYED)\*\*\* Press ESC Key.**

The beginning marker has not been set on the block of text you're attempting to move.

**\*\*\*ERROR E7: END NOT MARKED (OR UNDISPLAYED)\*\*\* Press ESC Key.**

The end marker has not been set on the block of text you're attempting to move.

**\*\*\*ERROR E8: BLOCK END MARKER BEFORE BEGINNING MARKER\*\*\***

The end marker is placed earlier in the document than the beginning marker.

**\*\*\*ERROR E9: BLOCK TOO LONG\*\*\* Press ESC Key.**

The amount of text between markers is more than WordStar-To-Go can move or delete.

**\*\*\*ERROR E12: DRIVE FULL\*\*\* Press ESC Key.**

You have run out of space on your current disk or the disk to which you are trying to save your file.

**\*\*\*FATAL ERROR F27: DIRECTORY FULL.**

You have exceeded 64 file directory entries, which is all the disk can hold.

**\*\*\*FATAL ERROR F28: CLOSE FAILURE.**

An operating system error has occurred. OR you have changed the disk in a drive while editing. OR you have deleted the input file or the work file with **CTRL KJ**.

**File A:filename NOT FOUND.**

The file named in response to the read, copy or print command does not exist.

**FINISHING PRINT...**

You were printing and at the same time you entered **X** from the OPENING MENU or **CTRL KX** while editing. OR you gave a save command while printing the .BAK file of the file currently being edited. OR you gave a save command (**CTRL KD**, **CTRL KS**, **CTRL KX**) while printing the same file concurrently.

**\*\*\*INTERRUPTED\*\*\* Press ESC Key.**

You pressed **CTRL U** to interrupt the command in progress.

**\*\*\*NOT FOUND: —\*\*\* Press ESC Key.**

The find, find-and-replace or find/replace again command can't locate the specified string between the cursor position and the end of the document.

**\*\*\*PRINT OUTPUT DRIVE FULL\*\*\***

The disk containing the print output file is full and printing is automatically halted.

**PUT AT TOP FOR GOOD PAGE DISPLAY!**

If the page break display is on, this message will appear in the text when you enter **.PL**, **.MT**, or **.MB** after the beginning of a file.

**Too little memory to edit and print at the same time.**

You can't select **D** or **N** from the OPENING MENU while printing or you can't give the print command (**CTRL KP**) during an edit.

**\*\*\*WARNING: DRIVE FULL DELETING OLD .BAK FILE.**

Your disk may be filling up or the files are so large that two or three files fill one disk.

**WARNING: Editing and printing same file!**

WordStar-To-Go will not allow you to save the edited version of a file until the print has completed or has been abandoned.

**\*\*\*WARNING: Word too long to fit margins.**

There are too many characters to fit between the currently set left and right margins with no word break.

The precedence of these operators within an expression is as follows: multiplication and division first, addition and subtraction second, comparison operators last. If all operators in an expression have equal precedence, then the expression is evaluated from left to right.

Expressions also make use of these Calc-To-Go functions.

<b>ABS</b> ( <i>argument</i> )	Returns absolute value of argument
<b>AND</b> ( <i>list of arguments</i> )	Returns 0 if any argument evaluates to 0, otherwise returns 1
<b>AVG</b> ( <i>list of arguments</i> )	Returns average value of arguments
<b>CHOOSE</b> ( <i>argument, range</i> )	Returns value of <i>n</i> th cell in range ( <i>n</i> = value of first argument)
<b>COUNT</b> ( <i>list of arguments</i> )	Returns number of numeric items in arguments
<b>E</b>	Returns value of natural logarithm base (2.718...)
<b>ERR</b>	Returns ERR (error) in current cell
<b>FALSE</b>	Returns a value of 0
<b>IF</b> ( <i>argument, argument, argument</i> )	If value of first argument is non-zero, returns value of second argument, otherwise, returns value of third argument
<b>INT</b> ( <i>argument</i> )	Returns integer part of argument

<b>ISERR</b> ( <i>cell</i> )	Returns 1 if the named cell contains ERR
<b>ISNA</b> ( <i>cell</i> )	Returns 1 if the named cell is empty or contains N/A
<b>LOOKUP</b> ( <i>argument, range</i> )	Searches range for value equal to or higher than first argument. Returns value of cell immediately to right of matching cell if a column range, or cell immediately below matching cell if a row range
<b>MAX</b> ( <i>list of arguments</i> )	Returns maximum value from arguments
<b>MIN</b> ( <i>list of arguments</i> )	Returns minimum value from arguments
<b>N</b>	Returns N/A (not available) in current cell
<b>N</b>   <i>argument</i> )	If argument evaluates to 0, returns 1 and vice versa
<b>OR</b> ( <i>list of arguments</i> )	Returns 1 if any argument is non-zero, otherwise returns false
<b>PI</b>	Returns value of PI (3.14159...)
<b>SUM</b> ( <i>list of arguments</i> )	Returns sum of arguments
<b>TRUE</b>	Returns a value of 1

NOTE: A single argument can be a number, an expression, a function, or a cell name. A list of arguments can be any of the preceding or a cell range, in any combination. Range refers to a cell range.



## CELL REFERENCES WITHIN EXPRESSIONS

A group of cells can be referred to within an expression by specifying them as a cell range. Cells in the range must be adjacent and form a rectangle. The range is specified by indicating the two diagonally opposite corners of the rectangle separated by a colon or a period. For example, to specify the range of cells between A1 and D3 in an expression, you would type A1: D3.

Also, you can quickly find a reference to a specific cell within an expression by temporarily leaving the expression and searching for the cell you want to reference. Follow these steps for the quick search.

1. Enter the expression up to the point where you want to reference the cell.
2. Type **ESC**. Calc-To-Go will enter a special search mode.
3. Move the cell cursor to search for the cell to be referenced. When you find the cell, leave the cell cursor on that cell.
4. Type **ESC** again. The search mode will be canceled and the cell name will be entered in the expression.
5. Continue entering data into the expression.
6. After completing the entry, type **↵** or a cursor key. The cell cursor will return to the cell where the expression was entered.

When you find the cell to be referenced, instead of typing **ESC** you can type the character you want to follow the cell reference in your expression. The cell name will be entered in the expression, followed by the character you typed.

If you type **↵** when you locate the cell to be referenced, the cell reference will be entered in the expression, the entry will be terminated and the result will be entered into the cell that was the current cell when you began entering the expression.

If you type **:** (colon) when you locate the cell, the cell reference will be entered into your expression as the beginning of a cell range. You can then use the cursor keys to locate the cell to complete the range. When you find it, type the character to follow the cell range or type **↵** to complete the entry.

## CALC-TO-GO BASIC COMMANDS

Calc-To-Go has two BASIC COMMANDS. Both are accessed from the status line after the data entry prompt.

The GOTO command allows you to quickly move to a particular cell on the spreadsheet.

Typing **=** on the status line after the data entry prompt followed by a cell reference and then **↵** will immediately move the cell cursor to the referenced cell.

The CALCULATE command allows you to quickly recalculate the entire spreadsheet.

From anywhere in the spreadsheet, type **!** on the status line after the data entry prompt. Calc-To-Go will perform a quick calculation and display the results on your spreadsheet.



**CALC-TO-GO EXTENDED COMMANDS**

Calc-To-Go's EXTENDED COMMANDS enable you to customize your spreadsheet's format, insert or delete columns or rows, erase cells, copy or move columns or rows, save your spreadsheet to disk, print your spreadsheet or load your spreadsheet from the disk.

Each EXTENDED COMMAND is entered in the same way. Type **/** on the status line after the ENTER prompt. **/** displays a line of letters corresponding to the 12 EXTENDED COMMANDS.

Typing one of the command letters will display a line of subcommands which combine with the EXTENDED COMMANDS to provide you with the full range of Calc-To-Go's capabilities.

Below is a list of all Calc-To-Go EXTENDED COMMANDS, the key-strokes for accessing them and a description of each.

**CANCEL****CTRL U**

Cancels any command in progress and returns you to the ENTER prompt on the status line.

**BLANK****/ B**

Erases the contents of the current cell including any cell level (field) formatting.

Move the cell cursor over the cell you want to erase and type **/ B**.

**DELETE****/ D**

Deletes a row or column at the current cursor position.

**/ D C**

Deletes a column including any column level formatting. Move the cell cursor to a cell in the column you want to delete and type **/ D C**.

**/ D R**

Deletes a row. Move the cell cursor to a cell in the row you want to delete and type **/ D R**.

**EDIT****/ E**

Edits the contents of the current cell. Move the cell cursor to the cell you want to edit and type **/ E**. The current contents of the cell are displayed on the status line with the entry cursor flashing on the first character (a quote mark if the data in the cell is text). The EDIT command is in the overwrite mode so you can type over the current contents with new data. In the EDIT command, the cursor keys and cursor control keys move the entry cursor in these ways.

→ or **CTRL D**

Moves the entry cursor one character to the right.

↑ or **CTRL S**

Moves the entry cursor one character to the left.

or **DEL**

or **CTRL H**

↑ or **CTRL E**

or **INS**

Inserts a space at entry cursor location and moves all characters one space to the right.

↓ or **CTRL X**  
or **CTRL G**

Deletes the character at entry cursor location and moves all characters one space to the left.

After you finish editing, type **↵**. This enters the changes into the current cell.

## FORMAT

**/ F**

Allows you to format your spreadsheet in many ways. There are three levels for formatting your spreadsheet.

### LEVEL OPTIONS

**/ F G**

Formats the entire spreadsheet. The cell cursor can be anywhere on the spreadsheet.

**/ F C**

Formats the column where the cell cursor is. Move the cell cursor to the column you want to format and type **/ F C**.

**/ F F**

Formats just the cell where the cell cursor is located. Move the cell cursor to the cell (field) you want to format and type **/ F F**.

### FORMAT OPTIONS

FORMAT: D E G I £ R L TR TL width.dec->

Each of these three level options brings up a line of format options. Combining the format options below with one of the formatting levels will perform the

function for that particular level. So, to enter the format function, you would type:

**/ F** to enter the FORMAT command. They type **G** or **C** or **F** to choose the level. Finally, enter as many of the format options as you'd like to change. Sparate the options with commas.

NOTE: Field-level (cell) settings have priority over column-level settings and column-level settings have priority over global settings.

### DEFAULT LEVEL

**D**

The Default level setting option (D) instructs Calc-To-Go to default the format settings for a specified level (field, column, or gloal) and reverts to the next lower priority of format settings. Only the width and decimal options (the two at the right of the option line) are not affected.

The command /FFD cancels any field-level formatting for the current cell and reverts the cell's format to that of the column it is in. If there is no column-level formatting, the global-level format is used. If there is none, the default format applies.

The command /FCD cancels any column-level formatting. Any field-level settings within the column remain in effect.

The command /FGD cancels any global-level formatting and assigns the default format to any cells not affected by column- or field-level format settings.

### NUMBER FORMATTING

The options E, G, I, and R control only the way numbers are displayed, they have no effect on the value of numbers in memory.

- E** The Exponential option displays numbers in exponential (scientific) notation.
- G** The General option displays numbers in decimal notation when possible. If a number will not fit into a cell, it is converted into scientific notation.
- I** The Integer option truncates numbers to their integer values and displays them with no decimal places.
- £** The pound option rounds numbers to the nearest penny and displays them in pound notation.

### NUMBER JUSTIFICATION

- R** The numeric Right option right justifies numbers in the cell. This is the default setting.
- L** The numeric Left option left justifies numbers in the cell.

### TEXT JUSTIFICATION

- T R** The Text Right option right justifies text in the cell.
- T L** The Text Left option left justifies text in the cell. This is the default setting.

### SETTING COLUMN WIDTH

- n** Use the width option to specify the column width simply by typing in a number from 0 to 75. The default column width is 8.

You can set the width for the current column by choosing the column-level option, or for all columns by choosing the global-level option, but you can't set the width for an individual cell only (field-level option).

## DECIMAL OPTION

.n

You can specify the number of decimal places to be used in numeric entries with the decimal option. Simply type a period followed by a number from 1 to 15.

The default for this option is variable setting, which allows you to enter as many decimal places as you want. The decimal option cannot be used with the field-level option.

Setting the decimal option to 0 gives the default setting. To display numbers without any decimal places, use the integer option (I).

NOTE: When the decimal option is set, the width must also be set at the same time.

Changes the overall operation of Calc-To-Go. The five options are toggle switches. Typing the letter changes the option to the other setting. To view the global attributes and then return to the ENTER prompt without changing any of the attributes, type **CTRL U**.

Determines how Calc-To-Go will adjust the cell references in expressions after replication. ALL (the default) adjusts all cell references after replication.

## GLOBAL

/ G

## ADJUSTMENT

A

## BORDER

B

LOW adjusts references for cells with column names in lower case after replication.

Controls display of the borders containing the row numbers and column letters around the side and top of the spreadsheet window.

YES (the default) leaves the border around the window. NO removes the border.

## CALCULATE

C

Controls the automatic recalculation of cross-referenced cells in expressions.

When you enter a new expression or edit an existing one, Calc-To-Go immediately calculates the value of the expression and displays the number in the current cell. However, it does not automatically recalculate other expressions that refer to that cell unless this option is set to YES.

NO is the default value. When the default value is set, recalculation occurs only when you use the CALCULATE command ( **!** ) or when you replicate a cell.



**ORDER****O**

Determines whether calculations are performed row by row or column by column.

ROW (the default) evaluates expressions from left to right, beginning at row 1.

COLUMN evaluates expressions from top to bottom, beginning at column A.

**SCROLL****S**

Determines whether the window will scroll off the screen with the cell cursor.

YES (the default) scrolls the window following the cell cursor.

If NO is selected, the cell cursor will disappear off the screen while the spreadsheet window remains fixed. The status line will show the current cursor position even though the cell cursor is off the screen.

**INSERT****I I****I I R**

Adds a row or column in a section of the spreadsheet that is already filled.

Inserts a new blank row in place of the current row.

**I I C**

Inserts a new blank column in place of the current column.

An inserted row or column will take on the global formatting, if there is any. Otherwise, it will have the default format. The only exception to this rule is that

**LOAD****I L**

all column formatting will be retained in an inserted row.

Loads a spreadsheet saved onto a RAM disk or floppy disk into Calc-To-Go.

Type **I L**. You will be prompted for the filename of the spreadsheet. If the spreadsheet is not on the current logged drive, type the drive name followed by the colon before the name of the spreadsheet. Then type **↵**. The spreadsheet will be displayed on the screen.

NOTE: Loading another spreadsheet over the one you're currently working on will superimpose it on your current spreadsheet.

**OUTPUT****I O**

Prints the current spreadsheet or a part of it. Or puts the current spreadsheet in a special file that can be edited by WordStar-To-Go.

NOTE: You can print or create a special output file only for a currently loaded spreadsheet.

**I O P**

Prints out the current file. Brings up a prompt for you to enter the range of cells you want printed. Make sure that your printer properly connected and turned on. Then type **↵**.

**CTRL U** stops printing.

**/ O F**

Outputs the current file in a special format so it can be edited by WordStar-To-Go. Brings up a prompt for you to enter the filename to which you want to save this specially formatted version of your spreadsheet. Type the filename and then **↵**. Another prompt appears for you to specify the range of cells you want saved to this file. Then type **↵**.

## QUIT

**/ O**

Leaves Calc-To-Go and returns you to the PC-8401BM MENU. To verify that you want to leave the program, Calc-To-Go asks you to type **Y** or **N**.

Any entries made in the current spreadsheet and not saved will be lost with the QUIT command. QUIT does not save the GLOBAL option settings and does not save FORMAT settings.

## REPLICATE

**/ R**

Copies the contents of one cell or range of cells to another cell or range of cells. REPLICATE allows you to copy text and numeric entries exactly, and to copy expressions with appropriate adjustments made to any cell references. Only the *contents* of cells are copied, not the format.

To copy an entry with the REPLICATE command type **/ R** after the data entry prompt. Next,

respond to the prompt by typing the cell location being copied (from), followed by comma and the cell name receiving the copy (to). Then type **↵**.

It is also possible to copy a range of cells. To copy a partial row, respond to the *from, to* prompt with the range, followed by the leftmost field in the row to which you are copying.

You can copy a block of cells. Respond to the *from, to* prompt with the range you want copied (upper-left cell, colon, lower-right cell), followed by the location to which the top left cell of the block will be copied.

NOTE: REPLICATE also recalculates the cells it copies.

## SAVE

**/ S**

Stores a file so that it can be loaded in the future by Calc-To-Go, to allow changes or additions, printing or copying to an output file.

Saving preserves the FORMAT settings as well as the contents of the spreadsheet.

To save your spreadsheet, type **/ S** after the data entry prompt. Respond to the returned prompt by typing **O** if you plan to use your spreadsheet with

a spreadsheet program that uses the DIF (data interchange format) file format. If you plan to use your file only with Calc-To-Go, then type **C** for the Calc format.

After typing either **C** or **D** a second prompt appears. Respond by choosing a filename for your spreadsheet. You can store your spreadsheet on the current logged drive by just indicating the filename. If you want to store your spreadsheet on another drive, type the drive name, followed by a colon, followed by the filename. If you respond to the SAVE prompt with the name of an existing file, Calc-To-Go will overwrite that file without warning, no matter what kind of file it is.

NOTE: Calc-To-Go loads only Calc format files. It cannot load DIF format files. If you want to transfer a spreadsheet to a program which accepts DIF format files, you should also SAVE the spreadsheet in Calc format so you can load the file into Calc-To-Go for further data manipulation.

## ZAP

**/ X**

Clears the current spreadsheet from the screen. All FORMAT settings are erased and all GLOBAL options are returned to their default settings.

Type **/ Z** to zap your screen. Respond to the prompt by typing **Y** for Yes. Your screen will now be clear. Typing any other response to the prompt will cancel ZAP.

## CALC-TO-GO FUNCTION KEYS

<b>F1</b> or <b>CTRL D</b>	Moves the cell cursor to HOME position (A1)
<b>F2</b> or <b>=</b>	Calculates
<b>F3</b> or <b>CTRL U</b>	Cancels a command
<b>F4</b> or <b>/ B</b>	Blanks the current cell
<b>F5</b> or <b>/ S C</b>	Saves the current spreadsheet to disk in the Calc format

## SUMMARY OF CALC-TO-GO EXTENDED COMMANDS

<b>/ B</b> <b>BLANK</b>	Blanks contents of current cell
<b>/ D</b> <b>DELETE</b>	Deletes current column or row
<b>/ D C</b>	Deletes current column
<b>/ D R</b>	Deletes current row
<b>/ E</b> <b>EDIT</b>	Edits contents of current cell
<b>/ F</b> <b>FORMAT</b>	Sets format for current cell, column or entire spreadsheet

### FORMAT LEVEL

<b>/ E G</b>	Sets format for entire spreadsheet
<b>/ F C</b>	Sets format for current column
<b>/ F E</b>	Sets format for current cell

### FORMAT OPTIONS

<b>D</b>	Reverts format to next lower priority level
<b>E</b>	Displays numbers in scientific notation
<b>G</b>	Displays numbers in decimal format; converts to scientific format to fit cell width if necessary

**I**  
**£**  
**R**  
**L**  
**T R**  
**T L**  
*n.n*

**/ G** **GLOBAL**

**A**  
**B**  
**C**  
**O**  
**S**

**/ I** **INSERT**  
**/ I R**  
**/ I C**  
**/ L** **LOAD**

**/ D** **OUTPUT**  
**/ B P**  
**/ O E**

Displays integer portion of numbers
Displays numbers with two decimal places
Displays numbers flush right
Displays numbers flush left
Displays text flush right
Displays text flush left
Sets column width and number of decimal places to display*
Toggle switch to set global features for entire spreadsheet
Expression adjustment of lowercase cell references
Displays row and column borders
Enables automatic recalculation
Recalculation order
Turns off screen update when cell cursor moves off screen
Inserts row or column at current cell cursor position
Inserts row at current cell position
Inserts column at current cell position
Loads a spreadsheet saved in Calc format from disk into Calc-To-Go
Outputs a file to printer or to a special format file
Prints file on printer
Outputs file in special format to disk so it can be edited with WordStar-To-Go



**/ Q QUIT**

Leaves Calc-To-Go and returns to PC-8401BM  
MENU without saving changes to the spreadsheet

**/ R REPLICATE**

Copies cells or groups of cells

**/ S SAVE**

Saves spreadsheet to disk in either Calc format or  
DIF format

**/ S C**

Saves spreadsheet in Calc format

**/ S D**

Saves spreadsheet in DIF format

**/ Z ZAP**

Clears spreadsheet

\*The default width is 8; the default for decimals is  
0.

**CALC-TO-GO ERROR MESSAGES**

If you make a mistake while entering a command or data, an error message will appear on the screen.

If the error is made while entering data, one of the following error messages may appear in the current cell:

>>>>>>>>>

This error occurs when the column is not wide enough to display the numerical value.

**ERR**

This error occurs if the expression entered on the status line is incorrectly formed or if its numeric result exceeds Calc-To-Go's limits.

**N/A**

This error occurs when the expression entered on the status line refers to a cell containing the function NA (not available).

The following is an alphabetical listing of error and information messages that may appear on the status line. The computer will also alert you of an error with a beep.

The error messages require that you type **ESC** before continuing so you cannot go ahead to the next command, even if you have typed ahead. When you type **ESC**, the command or cell entry is canceled, and the data entry prompt appears so you can reenter the command or data correctly. Typing **ESC** does not affect your spreadsheet.

## **??COORDINATE**

This error message appears if you are using GOTO (=), REPLICATE (/R), or OUTPUT (/O) and you did not supply a correct coordinate.

## **?? DELETING REF'D CELL**

This error message appears if you are using DELETE(/D) and you attempt to delete a cell referenced by an expression.

## **?? FILE NAME**

This error message appears if you are using LOAD (/L), OUTPUT (/O) or SAVE (/S) and Calc-To-Go cannot load, output or save the file named. If you are trying to load, either the file does not exist or you mistyped the name. If you are trying to output or save, your file directory may be full.

## **?? FILE TYPE**

This error message appears if you are using LOAD (/L) and the file you named does not contain valid spreadsheet data.

## **?? "from" COORDINATE**

This error message appears if you are using REPLICATE (/R) and you did not specify a valid cell or cell range before the comma.

## **?? INVALID NUMBER OR EXPRESSION**

This error message appears if you are entering data and the first character you typed causes Calc-To-Go to expect a numeric or expression entry. However, when you complete the entry it is neither a number nor an expression, and Calc-To-Go treats it as text. If you really

intended the entry to be a number or an expression, use EDIT (/E) to correct it.

## **?? OPTION**

This error message appears if you typed an invalid letter in response to a prompt within a command.

## **OUT OF FILE SPACE**

This error message appears if you are using OUTPUT (/O) or SAVE (/S) and there is not enough space on the drive or in the directory for the data you are typing to output or save.

## **OUT OF MEMORY**

This error message appears if there is not enough memory to complete the operation you started. If you are entering data, the last line typed is lost. If you are using INSERT (/I), REPLICATE (/R) or LOAD (/L), part of the operation may be completed. Note that REPLICATE starts working with the highest numbered cells.

## **??? RANGE**

This error message appears if the command requires a cell range and you supplied an incorrect one.


## **?? "to" COORDINATE**

This error message occurs if you are using REPLICATE and you did not specify a valid cell or cell range after the comma.


## 6. PERSONAL FILER


NOTE: Be sure the file storage area you are using is formatted if you are using your PC-8401BM for the first time. Refer to Chapter 2.5 of the *PC-8401BM User's Guide* for this information.

### STARTING PERSONAL FILER

Personal Filer is stored under the filename FILER on the PC-8401BM MENU. Move the directory cursor over the name using **SPACE** or .

Then type . The FILER string will appear following the A> prompt.

Type filename to open from the keyboard or select the file by moving the directory cursor over the filename. Type . The filename can be typed in either upper or lower case letters.

If the file has a .FIL extension, you can open it directly by placing the directory cursor over the filename and typing  twice. This will open the file and automatically take you into the Personal Filer program.

### CREATING A CARD FORM







#### THE DEFINE COMMAND **f.6**

The DEFINE command **f.6** defines or changes a card form. No data cards can be entered until the card form is defined. Once data cards have been entered, you can change the card form only if the number of fields remains the same. You cannot increase or decrease the number of data fields after data cards have been stored. Each data field name must end with a colon.

The EXIT command **f.5** saves the card form into the RAM of the PC-8401BM and brings up the first blank card for data entry.

The ABORT command **f.4** stops the DEFINE command, cancels any changes and saves the previous card form.

The DEFINE command key summary:

-  Moves the cursor up one line
-  Moves the cursor down one line
-  Moves the cursor one column to the right
-  Moves the cursor one column to the left
-  A destructive backspace; erases the character to the left of the cursor
-  Moves the cursor to column 1 of the next line

## ENTERING CARDS

### THE ADD COMMAND **f.1**






The ADD command is used to enter cards into the card file.

Cards are inserted in front of the card displayed when the ADD command is selected.

Enter the ADD command by typing **f.1**. The ADD command displays a blank card in the form defined.

Enter the data into the blank card just as if you were filling out a blank form.

The ADD command key summary:

-  Moves the cursor up one line
  -  Moves the cursor down one line
  -  Moves the cursor one column to the right
  -  Moves the cursor one column to the left
  - TAB** Moves the cursor to the next data field
  - DEL** Deletes the character to the left of the cursor
  -  Moves the cursor to the first column of the next line
- Typing **f.5** — EXIT — saves the card into memory and brings up the next blank card. Fill out the next card. Repeat this procedure until all cards are entered.

Typing **f.4** — ABORT — exits the ADD command and returns to the SELECT COMMAND status.

## RETRIEVING CARDS

### THE SEARCH COMMAND **f.3**

The SEARCH command retrieves a particular card or cards containing specific information.

Typing **f.3** — SEARCH — brings up a SEARCH FORM. To specify what cards to retrieve, fill in the SEARCH FORM. You can choose either a simple retrieval (matching just one field) or a complex retrieval (matching more than one field).


To begin searching for the specified cards, type **f.5** — EXIT.

To cancel the SEARCH, type **f.4** — ABORT.

When a card matching the SEARCH FORM is found, you are asked MORE (Y/N)? To continue searching, type **Y**. To stop the search and to return to the SELECT COMMAND status, type **N**.


### THE NEXT, PREVIOUS, TOP AND BOTTOM COMMANDS


To view your cards one by one you can select the NEXT, PREVIOUS, TOP or BOTTOM commands.


NEXT displays the card after the one currently on the screen. NEXT is loaded into .



PREVIOUS displays the card before the one currently on the screen.

PREVIOUS is loaded into 

TOP moves you quickly to the first card in the file. TOP is accessed by typing  with either **SHIFT** or **CTRL**.

BOTTOM moves you quickly to the last card in the file (which is always blank). BOTTOM is accessed by typing  with either **SHIFT** or **CTRL**.



## MODIFYING CARDS

### THE MODIFY COMMAND **f-2**

The MODIFY command is used to change the contents of existing cards.

Find card you wish to change using the SEARCH, NEXT, PREVIOUS, TOP or BOTTOM commands.

Then type **f-2** — MODIFY.

Make changes to the information on the card. , **TAB**, **DEL** and  operate like they do in ADD.

To save the changes made during MODIFY and to exit to the SELECT COMMAND status, type **f-5** — EXIT.

To cancel the changes made and to save the original card, type **f-4** — ABORT.

## DELETING CARDS

### THE DELETE COMMAND **f-7**

The DELETE command deletes the current card on the screen.

Find the card you wish to delete using the SEARCH, TOP, BOTTOM, NEXT or PREVIOUS commands.

To delete the card, type **f-7** — DELETE.



The DELETE commands asks you to confirm whether you want to delete the card with a message DELETE THIS (Y/N)? To delete the card, answer **Y**. To cancel the DELETE command, answer **N**.

## SORTING CARDS

### THE SORT COMMAND **f-8**

The SORT command sorts your cards in alphabetic order on a particular field.

Select **f-8** — SORT. You will be prompted to SELECT KEY FIELD.

Use ,  or **TAB** to move the cursor to field you want to sort on. Then type **f-5** — EXIT. The cards are automatically sorted on this field and you are returned to the SELECT COMMAND status.

To cancel the SORT command, **f-4** — ABORT.

Cards are sorted in the ASCII sort order.

## PRINTING CARDS

### THE PRINT COMMAND **F-4**

The PRINT command produces a hard copy of selected cards, portions of cards or the entire card file to the printer.

Select **F-4** — PRINT. A PRINT FORM, a blank card, appears on the screen. To choose the data fields you want to be printed and how that data should appear on the page, fill out the PRINT form using these two characters.

X after the field name tells Personal Filer to print this data field and then perform a line feed.

+ after the field name tells Personal Filer to print this data field and then print a blank space.

Save the PRINT FORM with **F-5** — EXIT.

Then choose what cards you want to print by filling out the SEARCH FORM like you did in the SEARCH command. Type **F-5** — EXIT. The selected cards will be printed by the printer in the manner you specified with the PRINT FORM.

To print the entire card file, type **F-5** — EXIT — in response to the PRINT FORM.

Stop printing by typing **SHIFT** and **STOP**.

## AUTO DIALING

### THE CALL COMMAND **F-5**

The CALL command automatically dials phone numbers stored in the card file.

The dialing pulse rate is 10 pps (pulses per second). If your telephone accepts only a 20 pps rate, you cannot use the CALL command.

Locate the card with the phone number you wish to dial using the SEARCH, NEXT, PREVIOUS, TOP or BOTTOM commands.

Then type **F-5** — CALL.

You are prompted for the number to dial.

Move the cursor to the field containing the phone number. The cursor can be moved anywhere in the field where the phone number is stored and not necessarily on the first digit of the number.

To dial the number, type **F-5** — EXIT. The dialing begins instantly and a message CALLING, appears with each digit as it is dialed.

You can stop dialing by typing **CTRL C**. Dialing is immediately aborted and you will return to the SELECT COMMAND status.

A special pause character can be placed in the phone number field.

The pause character, the semicolon (;) makes a one second pause before dialing the next digit.

CALL ignores all characters other than digits and semicolons. So you can include dashes (–) or slashes (/) between phone numbers to make the data fields easier to read.

## RETURN TO THE PC-8401BM MENU

### THE EXIT COMMAND f-10

The EXIT command stores the cards in the file and returns you to the PC-8401BM MENU.

Unless EXIT is used, Personal Filer never stores the changes or additions made to the card file.

The EXIT command saves the card file to the storage area in two steps. First, the updated file with changes made is saved under a new name. The original file (before the changes) is not changed.

At this point two files have been saved, so twice the size of the storage area necessary for one file must be reserved on the disk. After the updated file has been successfully saved, the original file is erased. The new file is then renamed to the original name.

Because twice the storage area is necessary for both the updated and the original file, you may encounter a message, DISK FULL, DELETE ORIGINAL BEFORE SAVING NEW ONE (Y/N)?

Answer **Y** to accept. The original file is deleted at this time. If a disk I/O error should occur, the entire file may be lost.

If you responded with **Y**, Personal Filer deletes the original file and tries to save the new one again. You then return to the PC-8401BM MENU. If there is still not enough room to save the new file, a message, STILL NO ROOM will appear.

This happens if your file contains too many cards. Delete some cards and try to EXIT until you are successful.

### THE QUIT COMMAND f-9

The QUIT command returns you to the PC-8401BM MENU without modifying the existing file. Any cards you've added or modified during the current session will be lost.

The QUIT command asks you to confirm the command by answering **Y** or **N**. Answering **Y** will return you to the PC-8401BM MENU.

## SUMMARY OF PERSONAL FILER COMMANDS

f-1	ADD	Adds new cards.
f-2	MODIFY	Modifies an existing card.
f-3	SEARCH	Searches for a particular card.
f-4	PRINT	Prints particular cards or entire file.
f-5	CALL	Automatically dials phone number.
f-6	DEFINE	Defines card form.
f-7	DELETE	Deletes card.
f-8	SORT	Sorts cards in alphabetic order.
f-9	QUIT	Returns to MENU. Does not save cards.
f-10	EXIT	Returns to MENU. Saves cards.

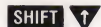


**NEXT**

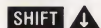
Displays the next card in the file.

**PREVIOUS**

Displays the previous card in the file.

**TOP**

Displays the first card in the file.

**BOTTOM**

Displays the last card in the file.

## PERSONAL FILER ERROR MESSAGES

### Missing file name (STARTING PERSONAL FILER)


This error occurs if, when starting Personal Filer, you don't enter a card filename after FILER on the command line. Remember that when you create a new card file, you must name the card file and enter that name after FILER on the command line.


### Bad file (STARTING PERSONAL FILER)

This error occurs if the filename you try to open is not a card file. Only card files created in Personal Filer can be used with Personal Filer. WordStar-To-Go files and Calc-To-Go files cannot be used with Personal Filer.

If this error message appears even though the file you tried to open is a card file, the file contents have been corrupted. The file can no longer be used.

### No File (STARTING PERSONAL FILER)

This error occurs if you try to re-open a card file that does not have a .FIL extension by placing the directory cursor over the filename and typing  twice.

Card files without the .FIL extension must be opened by typing the filename after FILER on the command line or by moving the directory cursor over the filename in the MENU and typing  to place the filename on the command line.

### Memory full (DEFINE, ADD MODIFY)

This error occurs when the memory of the PC-8401BM is full and the new form, new card or changes cannot be stored. The old form or old card remains unchanged. Delete some cards and try to save again.

### Bad form (DEFINE)

This error occurs in one of two instances.

1. You attempted to change the number of fields in your card form while entering data.
2. You've created a data field which has less than two characters. A data field must have more than one character.

### Too many items (DEFINE)

This error occurs when you put more than 50 fields in your card form. Fifty is the maximum number of fields you can define within your card form. If this occurs, you must re-create your entire form with 50 or less fields.

### No form defined (ADD, SEARCH, MODIFY, PRINT)

You have not yet defined a form so any other Personal Filer operation cannot be performed. Define a form first.



## 7. TELCOM

NOTE: Be sure the file storage area you are using is formatted if you are using your PC-8401BM for the first time. Refer to Chapter 2.5 of the *PC-8401BM User's Guide* for this information.

### MAKING CONNECTIONS

#### HOOKING UP THE INTERNAL 300 BAUD MODEM

To use TELCOM with the 300 baud internal modem of your PC-8401BM, follow these steps.

1. Make sure that the power to the PC-8401BM is turned OFF.
2. To hook up the PC-8401BM directly to the telephone line and bypass the telephone, remove the RJ-11 jack from the back of the phone and insert it into the LINE port on the rear of the PC-8401BM.

OR

To hook up the PC-8401BM to the telephone for normal conversation for manual dialing with the internal 300 baud modem, remove the RJ-11 jack from the back of the phone and insert it into the LINE port on the rear of the PC-8401BM. Then insert one end of the PC-8499A-04 phone cable into the PHONE port on the rear of the PC-8401BM and the other end into the modular connector on the telephone.

3. Turn the power switch of the PC-8401BM to ON.  
For more specific information about using the internal 300 baud modem, see Chapter 7 of the *PC-8401BM User's Guide*.

#### HOOKING UP AN EXTERNAL MODEM

To connect the PC-8401BM to an external modem, use the PC-8495A-01 RS-232C cable (normal). Connect one end to the RS-232C port on the PC-8401BM, and the other to the RS-232C port on the external modem.

#### STARTING TELCOM

The telecommunications utility program, TELCOM, is stored under the filename TELCOM on the PC-8401BM MENU. Move the directory cursor over the name TELCOM using **SPACE** or **⌘** and type **↵** twice. That TELCOM program will start and automatically enter the terminal mode. You may begin communications immediately.

#### TELCOM FUNCTION KEYS IN THE TERMINAL MODE

TELCOM has six command function keys available from the terminal mode screen.

- 1-1** SETUP is used to change the communications parameters and screen format.
- 1-2** TEL(ephone) is used for automatic dialing, if your external modem has dialing capabilities, and automatic log-on. The dial command for an external modem and log-on procedures can

be entered manually, or selected from the TELCOM telephone directory.

- f-3** UP(load) is used to transmit a file to the RS-232C circuit.
- f-4** DOWN(load) is used to store data received from the RS-232C circuit.
- f-5** DIR(ectory) displays the filenames on a disk.
- f-6** BYE is used to exit from TELCOM mode and return to the PC-8401BM MENU.

## THE SETUP COMMAND

The SETUP command **f-1** is used to change the communications parameters or screen format. When SETUP is selected, you will see:

SETUP

RET: EXIT  
UP/DOWN: MOVE CURSOR  
RIGHT/LEFT: CHANGE VAL

CONNECTION  
PROTOCOL  
SPEED  
WORD LENGTH  
SI/SO  
STOP BITS  
PARITY  
XON/XOFF  
ECHO

~~SP232C~~  
OFF  
9600  
8  
ON  
2  
NO  
ON  
OFF

CHAR WRAP  
NEW LINE  
PPS  
LABEL  
DEL CODE  
LF SUP  
LINE DELAY  
PRINT  
SAVE

ON  
OFF  
10  
ON  
7F  
ON  
8  
OFF  
OFF

Use **↑** or **↓** to move to each parameter. Use **←** or **→** to change the values for each parameter.

The values which can be selected for each parameter are:

- CONNECTION** Selects whether you use the RS-232C port (default) or the 300 baud internal modem (MODEM).
- PROTOCOL** MODEM7 protocol ON or OFF (default). The default protocol is no protocol.
- SPEED** Select from baud rates of 150, 300, 600, 1200, 2400, 4800, 9600 (default) or 19200 baud.
- WORD LENGTH** . 7 or 8 (default) bits per character.
- SI/SO** Shift in/out sequence ON (default) or OFF.
- STOP BIT** Stop bit length of 1, 1.5 or 2 (default).
- PARITY** No (default), EVEN, ODD or IGNORE parity.
- XON/XOFF** Toggles XON (default)/XOFF flow control
- ECHO** Toggles the display of transmitted characters to the screen ON or OFF (default).
- CHAR WRAP** Character wraparound ON (default) or OFF.
- NEW LINE** Line feed/New line mode is ON or OFF (default).
- LABEL** Function key labels ON (default) or OFF.

DEL CODE	DEL key value 7FH (default) or 08H.
LF SUP	Line Feed Suppress control ON (default) or OFF.
LINE DELAY	0 (default), 100, 200, 300, 400, 500, 600 or 700 millisecond delay in Terminal mode. Values double to 0 (default), 200, 400, 600, 800, 1000, 1200 or 1400 millisecond delay in MODEM7 mode.
PRINT	Echo received data to printer ON or OFF (default).
SAVE	Save setup parameters ON or OFF (default).

When you have selected the set-up values necessary for your data communications, type **←**. TELCOM will return to the terminal mode.

### THE TEL(ephone) COMMAND

The TEL command is used for automatic dialing and log-on with the 300 baud internal modem and selected external modems with auto dialing capabilities. (For exact dialing commands, please refer to the User's Guide of the selected external modem.)

Automatic dialing and log-on or automatic dialing and log-on from the telephone directory are supported with the internal 300 baud modem. When TEL is selected, you will see the starting menu for the TEL(ephone) command. The function keys in this command are:

<b>f.1</b> CAN	Cancels dialing (Exit to the terminal mode.)
<b>f.2</b> NEXT	Displays next directory page.
<b>f.3</b> PREV	Displays previous directory page.
<b>f.4</b> MODEM	Selects modem.
<b>f.5</b> HANDSET	Selects handset.

### AUTOMATIC DIALING AND LOG-ON

When TEL is selected, the contents (if any) of the telephone directory will be displayed. If no telephone numbers or log-on procedures are in the telephone directory, you must type the phone number at the prompt, INPUT? Then type **←**. Automatic dialing will begin.

After the connection is established, you can choose either HANDSET to talk on the phone or MODEM for data communications.

After the connection is established, you must pick up phone first and then type **/H** and **←** (or type **f.5**). Otherwise you will be disconnected.

If you choose the modem, type **/M** for MODEM (or **f.4**). Then type **←**.

If you want to enter log-on procedures from the keyboard instead of entering them into the telephone directory, you should do this using the TELEphone command of TELCOM. At the INPUT? prompt of TEL, type the phone number followed by **/M/T**. This will dial the number, choose



the modem and then enter the terminal mode once the connection is made. You can type the log-on procedures from within the TELCOM terminal mode once you've received the prompt from the host computer.

### DIRECTORY ENTRY AUTOMATIC DIALING AND LOG-ON

If you have previously typed telephone numbers or log-on sequences into your directory, this information will be displayed on your screen when TEL is selected. Use the NEXT ( **F2** ) and PREV ( **F3** ) function keys to find information in the directory. At the prompt INPUT?, type the letter (A to J) for the telephone number or log-on procedure you wish to use. Then type **←**. Automatic directory entry dialing and/or automatic log-on begins.

### MODEM AND HANDSET

As explained in "AUTOMATIC DIALING AND LOG-ON", the MODEM **F4** and HANDSET **F5** function keys change your telephone line connection. Use HANDSET to talk on the phone or to listen for a carrier tone before connection. MODEM selects connection to the modem instead of the RS-232C circuit. The baud rate is set to 300 baud automatically. When **F4**, the MODEM function key, is typed, TELCOM waits for the carrier signal from the host computer. If the signal never arrives (if the line is busy or if the connection is never made), TELCOM enters an infinite loop. Type **STOP** and **SHIFT** to abort the MODEM command and escape from the infinite loop.

### ORIGINATE MODE AND ANSWER MODE

The PC-8401BM in TELCOM defaults to the originate mode so you can begin communication immediately in the terminal mode when you enter TELCOM. To answer communications in TELCOM, select the Answer mode by typing in the select switch **/A** after the INPUT? prompt or by choosing it from your directory. Then type **←**.

The **/A** answer switch must be typed before the **/M** or **F4** modem switch is typed.

### TELEPHONE DIRECTORY FILE

You can create a telephone directory file for automatic dialing and log-ons by opening a non-document file in WordStar-To-Go called TELDIR.DOC.

You can include telephone numbers and all special log-on procedures in the formats listed in "TELEPHONE NUMBERS" and "LOG-ON SEQUENCES AND COMMANDS".

Each number or Log-on procedure you enter in the directory file consists of two lines of data. The first line is information to remind you of what the number is (for example, MINERVA Log-on). After typing this information, type **←**. The second line contains the actual commands for telephone numbers or log-on sequences used in automatic dialing.

### TELEPHONE NUMBERS

Type telephone numbers in your directory (or after the INPUT? prompt) as they normally appear. Hyphens and parentheses will be ignored when the number is read. 987-654-3210 could be entered as 9876543210, 987/654-3210 or 987 (654) 3210.



**LOG-ON SEQUENCES AND COMMANDS**

Log-On commands (! and ?) must be enclosed in less than ( < ) and greater than ( > ) symbols. i.e., <xxxxxxxx>. Type in your log-on sequences in your directory or after the INPUT? prompt using these commands, characters, and switches:

**Log-On**

Command	Meaning
!	Send a specified string and character codes. The string must be enclosed by quotation marks, i.e., "x". Numbers sent are assumed to be hexadecimal numbers. To send multiple strings or multiple numbers, separate each string or number by a comma ( , ).
?	Wait for a specified string and character codes.

Character	Meaning
;(semi-colon)	Pause for 1 second
:(colon)	Pause for 3 seconds

Switches	Meaning
/H or /h	Selects handset connection.
/M or /m	Selects modem connection.
/O or /o	Selects originate mode.
/A or /a	Selects answer mode.
/T or /t	Selects terminal mode.

**EXAMPLE OF AN AUTOMATIC LOG-ON SEQUENCE**

Telephone numbers and log-on sequences may be mixed in any combination. An example of a log-on sequence to a host computer through your PC-8401BM and modem might be:

987-654-3210	to call 987-654-3210.
/M	to connect to a modem,
<	to begin the log-on sequence,
!	to send a string,
0D	code to send a carriage return,
?	to wait for a string,
"User's ID?"	the string to wait for,
!	to send a string,
"My ID", 0D	the string to send and a carriage return,
?	to wait for a string,
"OK"	the string to wait for,
!	to send a string,
"Hello", 0D	the string to send and a carriage return,
>	to end the log-on sequence,
/T	to go to terminal mode.

To enter this log-on sequence in your directory, type:

987-654-3210/M<!0D?"User's ID?"!"My ID", 0D?"OK"!"Hello",0D>/T

## THE UP(LOAD) COMMAND

UP(load) **f-3** transmits a file to the RS-232C circuit. Both no protocol and MODEM7 protocol are supported.

UP(load) can convert the binary WordStar-To-Go files created by the PC-8401BM to a standard ASCII file, if necessary. The file conversion is supported when uploading with no protocol or with the MODEM7 protocol.

To cancel the UP command, type **f-1** without filename or type any function key.

Before uploading, make sure that your hardware is properly connected. Refer to Chapter 7 of the *PC-8401BM User's Guide* for details on connecting hardware.

### UPLOAD WITH NO PROTOCOL

No protocol is the default protocol of the PC-8401BM TELCOM program. So to upload a file with no protocol, enter the terminal mode (the start-up menu of TELCOM). Make sure that your hardware is properly connected.

Type **f-3** — UP — to transmit a file. Respond to the prompt, FILE TO UP (W)?, by typing the filename and then **f-1**. If you want to convert and transfer a WordStar-To-Go file, type **W** after the filename and type **f-1**.

CAN **f-1** will cancel the upload. If you cancel the upload, the message, ABORTED, will appear on the screen.

To upload a file not stored on the currently logged disk, at the FILE TO UP (W)? prompt, type the filename and the designated drive in this the form; **d: filename f-1**.

If the file you choose to upload does not exist, the message, NO FILE ABORTED, will appear on the screen.

When the upload is completed, you will see the message, COMPLETED, on the screen.

### UPLOAD WITH THE MODEM7 PROTOCOL

The MODEM7 protocol can transmit all types of data. It also supports error checking procedures.

The MODEM7 protocol allows you to send any type of file — binary, hexadecimal, ASCII, etc. The files are sent exactly as they appear in your PC-8401BM.


The MODEM7 protocol is selected from the SETUP menu. Enter SETUP **f-1**. Use **↑** to move the cursor over the PROTOCOL parameter. Then use **←** to change to ON (MODEM7). Type **f-1** to exit the SETUP menu and to enter into the terminal mode. Type **f-3** — UP — to transmit a file. Notice that the prompt, FILE TO UP (W)? is preceded by MODEM7 to let you know that you are transferring a file using the MODEM7 protocol. Respond by typing the filename and then **f-1**. If you want to convert and transfer a WordStar-To-Go file, type **W** after filename and type **f-1**.

SYN START and SYN END will be displayed on the screen as synchronization between the PC-8401BM and the receiver of the data

takes place. Then actual transmission begins. Transmission of each packet of 128 data bytes is ACKnowledged on your screen. The number following ACK RECEIVED is the data block number (0 to 255). When all data blocks have been transmitted an ACKnowledgement received, SENDING EOT (End Of Text), ACK RECEIVED, and COMPLETED will be displayed. Then TELCOM will return to the Terminal mode.

If a data block is Not ACKnowledged as received, or BAD ACKnowledgement is received, TELCOM will wait 10 seconds (TIMEOUT appears) and try to retransmit the block. TELCOM will try to retransmit the block up to 10 times (NAK 1-10), and then will ask you to Continue (Y/N)?. Answer with **Y** (Yes) to continue, **N** (No) to discontinue. **N** will cancel the transmission, and ABORTED will appear on your screen.


CAN **f.1** will cancel the upload. If you cancel the upload, the message, ABORTED, will appear on the screen.

To upload a file not stored on the currently logged disk, at the FILE TO UP (/W)? prompt, type the filename and designated drive in this form;  
**d: filename** .

If the file you choose to upload does not exist, the message, NO FILE ABORTED, will appear on the screen.

## THE DOWN(LOAD) COMMAND


DOWN(load) receives data from the RS-232C circuit and stores it as a file in the PC-8401BM or on a disk. Both no protocol and MODEM7 protocol are supported.

To cancel the DOWN command, type  without a filename or type any function key.


Before downloading, make sure that your hardware is properly connected. Refer to Chapter 7 of the *PC-8401BM User's Guide* for information about connecting hardware.

## DOWNLOAD WITH NO PROTOCOL

No protocol is the default protocol of the PC-8401BM TELCOM program. So to download a file with no protocol, enter the terminal mode (the first screen you see when you enter TELCOM). Make sure that your hardware is properly connected.

Type **f.4** — DOWN — to receive a file. Respond to the prompt, FILE TO DOWN?, by typing a filename to store the received data in on the PC-8401BM and then .

CAN **f.1** will terminate the download. If you terminate the download, the message, COMPLETED, will appear on the screen.

To store the file on a disk other than the currently logged disk, at the FILE TO DOWN? prompt, type the filename and designated drive in this form; **d: filename** .



If the filename you choose already exists on the designated drive, the message, OVERRIDE (Y/N)?, will appear on the screen. **N** (No) aborts the download and displays the message ABORTED. **Y** (Yes) writes the received file over your stored file with the same filename. When the download is completed, you will see the message, COMPLETED, on the screen.

### DOWNLOAD WITH MODEM7 PROTOCOL

The MODEM7 protocol can receive all types of data. It also supports error checking procedures.

The MODEM7 protocol allows you to receive any type of file — binary, hexadecimal, ASCII, etc. The files are received exactly as they appear in the transmitting computer.

The MODEM7 protocol is selected from the SETUP menu. Enter SETUP **F1.1**. Use **↑** to move the cursor over the PROTOCOL

parameter. Then use **←** to change to ON (MODEM7).

Type **↵** to exit the SETUP menu and to enter into the terminal mode.

Type **F1.4** — DOWN — to receive a file. Notice that the prompt, FILE TO DOWN?, is preceded by MODEM7 to let you know that you are receiving a file using the MODEM7 protocol. Respond by typing the filename and then **↵**.

SYN START and SYN END will be displayed on the screen as synchronization between the PC-8401BM and the transmitter of the data takes place then actual reception begins. Each packet of 128 data

bytes is ACKnowledged on your screen as it is received. The number following SENDING ACK is the data block number (0 to 255). When all data blocks have been received and SENDING ACKnowledgement received, EOT (End Of Text) RECEIVED, SENDING ACK and COMPLETED will be displayed. Then TELCOM will return to the terminal mode.

If a block SENDING is Not ACKnowledged or BAD DATA is received, TELCOM will display TIMEOUT or BAD DATA and SENDING NAK. TELCOM will try to receive the block up to 10 times (NAK 1-10), and then will ask you to CONTINUE (Y/N)?. Answer with **Y** (Yes) to continue, **N** (No) to discontinue. **N** will cancel the transmission, and ABORTED will appear on your screen. TELCOM will automatically cancel reception if illegal data is received. SENDING CAN will be displayed, and reception is cancelled.

CAN **F1.1** will cancel the download. If you cancel the download, the message, ABORTED, will appear on the screen.

To download a file and store it on a disk other than the currently logged disk, at the FILE TO DOWN? prompt, type the filename and designated drive in this form; **d: filename ↵**.

### THE DIR(ECTORY) COMMAND

DIRectory **F1.5** displays the filenames on a disk. Type DIR(ectory) **F1.5** to display the filenames. The currently logged disk is the default. To display the files on another disk, type **F1.5**, type **d: ↵**. The filenames on that disk will be displayed on the screen.



### THE BYE COMMAND

BYE **1.6** exits TELCOM. You will be asked for confirmation with SURE(Y/N)?. **Y** (Yes) will exit TELCOM and return you to the PC-8401BM MENU. **N** (No) will cancel the BYE command.

### SPECIAL CHARACTERS

Your PC-8401BM is a very versatile machine. It can transmit and receive many types of special characters useful for or required by other computers and programs. See the *PC-8401BM Telecommunications and Personal Filer Manual* for details.

### TELCOM MESSAGES

Below is a summary of messages which may appear on the PC-8401BM screen while you are using the TELCOM program.

#### MODEM7 PROTOCOL MESSAGES

##### SYN START

Synchronization has started

##### SYN END

Synchronization has ended

##### SENDING ACK *n*

Message from the receiver acknowledging receipt of the numbered block of data

##### ACK RECEIVED *n*

Message from the sender acknowledging that the numbered block of data was successfully sent

##### SENDING NAK *n*

Message from the receiver acknowledging that the numbered block of data was not received

##### NAK RECEIVED *n*

Message from the sender acknowledging receipt of the message that the numbered block of data was not successfully received

##### SENDING CAN

Message from the receiver to cancel communications

##### CAN RECEIVED

Message from the sender that the cancel was received

##### SENDING EOT

Message from the sender that there is no more data; the end of text has been reached

##### EOT RECEIVED

Message from the receiver that the end of text has been received

##### BAD DATA

Message from the receiver that a bad data block has been received

**BAD ACK**

Message from the sender acknowledging the receipt of the bad data block

**ABORTED**

Communication has been cancelled

**TIMEOUT (*n*)**

A timeout has occurred

**CONT (Y/N)?**

When bad data is received or sent this message will appear to ask you whether you want to continue with the transmission

**GENERAL TELCOM MESSAGES****NO FILE**

The file named to upload or the file indicated with the DIR command was not found on the designated disk

**DISK FULL**

The disk specified in the DOWN command has no free space

**COMPLETED**

Appears on the screen after the UP and DOWN commands are successful

**ABORTED**

Appears on the screen when TEL, UP, DOWN, DIR and BYE commands are cancelled

**BREAK**

Break signal was generated

**INPUT?**

The TEL command prompt for entering either a telephone number to be automatically dialed or a telephone directory entry for auto dial or auto log-on procedures

**FILE TO UP (W)?**

Prompt in the UP command asking for the PC-8401BM filename to upload

**FILE TO DOWN?**

Prompt in the DOWN command asking for the name you want to call the file received in download

**MODEM7**

A message appearing on the PC-8401BM screen in the UP and DOWN commands indicating that the MODEM7 protocol was selected

**OVERRIDE (Y/N)?**

When downloading a file, this prompt appears if the name you want to call the file received in download already exists on the designated disk

**DIR**

When using the DIR command, this prompt appears so you can indicate the drive for which you want to view the directory

**SURE (Y/N)?**

This prompt appears after choosing to exit TELCOM with the BYE command to confirm the exit

## 8. COMPUTER TO COMPUTER COMMUNICATIONS AND DATA BASE PROCEDURES

### DATA BASE ACCESS

If you choose the HANDSET, you must pick up phone first and then both the 300 baud internal modem or an external modem through the RS-232C port for data communications. Popular applications for modem data communications include access to subscription electronic data services such as MINERVA.

NOTE: There are many data bases and electronic data services which require no subscription. MINERVA is used here for example only.

To set up your PC-8401BM for communications with an electronic data service, follow these steps for the hardware connection.

### HOOKING UP THE INTERNAL 300 BAUD MODEM

To use TELCOM with the 300 baud internal modem of your PC-8401BM, follow these steps.

1. Make sure that the power of the PC-8401BM is turned OFF.
2. To hook up the PC-8401BM directly to the telephone line and bypass the telephone, remove the RJ-11 jack from the back of the phone and insert it into the LINE port on the rear of the PC-8401BM.

OR


To hook up the PC-8401BM to the telephone for normal conversation for manual dialing with the internal 300 baud modem, remove the RJ-11 jack from the back of the phone and insert it into the LINE port on the rear of the PC-8401BM. Then insert one end of the phone cable into the PHONE port on the rear of the PC-8401BM and the other end into the modular connector on the telephone.




3. Turn the power switch of the PC-8401BM to ON.

For more specific information about using the internal 300 baud modem, see Chapter 7 of the *PC-8401BM User's Guide*.

### HOOKING UP AN EXTERNAL MODEM

To connect the PC-8401BM to an external modem, use the PC-8495A-01 RS-232C cable (normal). Connect one end of the RS-232C port on the PC-8401BM, and the other to the RS-232C port on the external modem.

Start the TELCOM program by placing the directory cursor over the file-name TELCOM on the PC-8401BM MENU and typing  twice.

Set up the communication parameters using the SETUP command according to the specifications supplied from the electronic data service (i.e., baud rate, word length, stop bits, etc.). Type  to display the SETUP communications parameters. Use  to change the individual parameters. Type  to go back to the terminal mode.



Dial the telephone number of the electronic data service either by dialing the telephone manually from the keyboard of the PC-8401BM using the TEL(ephone) command **f.2** at the prompt INPUT?.

INPUT? **3330000/m/t** 

where 3330000 is the electronic data service telephone number, /m means modem communication mode and /t means the terminal mode. (It is possible to have the dial sequence and log on procedures stored in a special file that appears as a directory when you use the TEL(ephone) command. Refer to the *PC-8401BM Telecommunications and Personal Filer Manual* for more information.)

NOTE: Certain external modems do not allow dialing from the keyboard. Refer to the owner's manual for the modem you are using for instructions.

When using the internal 300 baud modem and you used the keyboard dialing feature of the TEL(ephone) command, you will know when you are connected to the electronic data service when the screen changes to the terminal mode. type in the electronic data service log-on procedures at this time if they were not included in the TEL(ephone) command directory file. The correct sequence if not using the directory file would be, to first dial from the keyboard at the INPUT? prompt, and then to type in the log on procedures while in the terminal mode.

Continue your electronic data service session by responding to prompts and inputting data as necessary. To break the communication link after

your session is over, type **f.2** to start the TEL(ephone) command or type **f.6**, the BYE command to return to the A> prompt.

## COMPUTER TO COMPUTER COMMUNICATIONS

The PC-8401BM can communicate directly with other computers by using the TELCOM program and a hard-wire cable connection from the RS-232C port of the PC-8401BM to the RS-232C port of the other computer.

A reverse RS-232C cable must be connected between the PC-8401BM and the other computer. For most direct communications, the PC-8295A-02 RS-232C Cable (Reverse) can be used. In other cases, another reverse cable is necessary.

The next four sections describe the procedures for transferring files between the PC-8401BM and several other kinds of computers. Communicating between the PC-8401BM and two of the most popular personal computers — the IBM PC and the Apple IIc — has been tested and the procedures and requirements are listed below. Also, the procedure for transferring files between the PC-8401BM and the Digital Equipment Corp. VAX mini computer is included.

To communicate between the PC-8401BM and personal computers not listed in this Quick Guide, please refer to the User's Guide of the particular personal computer for specific information. Use the following procedures as guidelines only for communicating with personal computers other than those listed in this Quick Guide.



## COMPUTER TO COMPUTER COMMUNICATION BETWEEN THE PC-8401BM AND THE IBM PC

### CONNECTING THE COMPUTERS

To connect the PC-8401BM and the IBM PC for computer to computer communications, the following hardware and software is necessary.

#### HARDWARE

PC-8401BM

IBM PC

RS-232C REVERSE CABLE

#### SOFTWARE

PC-DOS version 2.0 operating system

PC-TALK3, a public domain communications software program.

To connect the IBM PC and the PC-8401BM for communication, turn OFF the power of both computers. Connect the RS-232C reverse cable to the RS-232C ports on both computers.

Make sure that the file COMMAND.COM from the PC-DOS operating system disk has been transferred to the PC-TALK3 disk.

Also make sure that you have the file you want to send to the PC-8401BM on the PC-TALK3 disk or on a data disk in drive B.

If you're receiving a file from the PC-8401BM, make sure that you have enough storage space on the PC-TALK3 disk or a data disk in drive B to store the file.

### DOWNLOADING A FILE FROM THE IBM PC TO THE PC-8401BM

1. Refer to the procedure the section above for connecting the IBM PC and the PC-8401BM with the proper hardware and software.
2. Insert the PC-TALK3 disk in drive A of the IBM PC and boot the disk. At the IBM PC A> prompt type

#### PC-TALK3 ↵

In a few seconds the copyright information and the welcome screen of PC-TALK3 will appear. You will be prompted to hit any key to proceed. Type any key. You now enter the PC-TALK3 terminal mode.

3. To select the communications parameters for the IBM PC, type **ALT**

**F**.

Select these parameters

Baud rate	9600	↵
Parity	N	↵
Data bits	8	↵
Stop bits	1	↵

The remaining default parameters can be used. Type **ESC** ↵ to return to the PC-TALK3 terminal mode.

4. On the PC-8401BM enter the TELCOM program by moving the directory cursor over the file TELCOM on the MENU and typing ↵ twice.

5. Next, type **f.1** to enter the SETUP menu of TELCOM. Select the communications parameters to these values to match the parameters set for the IBM PC. Use **↑** and **↓** to move to each parameter. Use **→** and **←** to change the value for the parameters.

PROTOCOL	ON	PARITY	NO
SPEED	9600	ECHO	OFF
WORD LENGTH	8	PRINT	OFF
STOP BITS	1	SAVE	OFF

The remaining default parameters can be used. Type **←** to return to the PC-8401BM terminal mode.

6. On the IBM PC, type **ALT T**. You will be prompted for what file on disk in the IBM PC you want to send. Type the filename and designated drive in this format.

**d: filename.EXT = x ←**

The =x means that the XMODEM protocol of PC-TALK3 — the same as MODEM7 on the PC-8401BM — will be used.

7. On the PC-8401BM, type **f.4** (DOWNload). At the prompt, FILE TO DOWN?, type the name you want to call the file being sent from the IBM PC and what drive you want to store it on in this format.

**d: filename.EXT ←**

The file transfer is now in progress. COMPLETE messages will appear on the screens of both computers when the file has been successfully transferred.

#### UPLOADING A FILE FROM THE PC-8401BM TO THE IBM PC

Refer to the section above and follow steps 1 through 5. Then, begin with no. 6 below.

6. On the PC-8401BM type **f.3** (UPload). At the prompt, FILE TO UP (/W)?, type the name of the PC-8401BM file you want to send to the IBM PC. Type the PC-8401BM filename and the drive where it is stored in this format.

**d: filename.EXT. ←**

7. On the IBM PC, type **ALT R**. You will be prompted for the name you want to call the file being sent from the PC-8401BM and which designated drive you want to store it on. Follow this format.

**d: filename.EXT = X ←**

The =x means that the XMODEM protocol of PC-TALK3 — the same as MODEM7 on the PC-8401BM — will be used.

The file transfer is now in progress. COMPLETE messages will appear on the screens of both computers when the file has been successfully transferred.

## CALC-TO-GO DIF FILE TRANSFER

Calc-To-Go files saved with a .DIF extension on the PC-8401BM can be transferred to the IBM PC from the PC-8401BM and then loaded into either VisiCalc or Lotus 123 running on the IBM PC. Refer to the *Calc-To-Go Manual* for information on how to save files in the DIF format.

## COMPUTER TO COMPUTER COMMUNICATIONS BETWEEN THE APPLE IIc AND THE PC-8401BM

### CONNECTING THE COMPUTERS

To connect the PC-8401BM and the Apple IIc for computer to computer communications, the following hardware and software is necessary.

#### HARDWARE

PC-8401BM

APPLE IIc

IMAGEWRITER CABLE PART NO. A9C0308 — REVERSE RS-232C CABLE (APPLE IMAGEWRITER PRINTER CABLE)

#### SOFTWARE

APPLE ACCESS II TELECOMMUNICATIONS SOFTWARE PACKAGE.

To connect the Apple IIc and the PC-8401BM for communications, turn OFF the power of both computers. Connect the round, 5 pin-DIN connector end of the Imagewriter cable to the Apple IIc's modem port on

the rear of the Apple IIc. This port is labelled with a no. 2 and a picture of a phone.

Connect the DB-25 connector end of the Imagewriter cable to the RS-232C port on the rear of the PC-8401BM.

Copy the Apple Access II disk to a non write protected disk. Make sure that the file you want to send to the PC-8401BM is also on this disk. If you're receiving a file from the PC-8401BM, make sure that you have enough storage space on this disk to store the file.






### DOWNLOADING A FILE FROM THE APPLE IIc TO THE PC-8401BM

1. Refer to the procedure in the section above for connecting the Apple IIc and the PC-8401BM with the proper hardware and software.
2. Insert the Apple Access II disk into the drive and boot it up. The main menu of the Access II program will appear.
3. Select "**Set Up Communications**" function and type **↵**.


In the Set Up Menu, select "Terminal Characteristics." Select "8 bits per character" and type **ESC**. All other default settings can be used. Return to the Set Up Menu by typing **ESC**.


In the Set Up Menu, select "**Set Speed**" and type **ESC**. Set speed to 9600 and type **ESC** to return to the Set Up Menu. To return to the Main Menu type **ESC** again.




4. On the PC-8401BM, enter the TELCOM program by moving the directory cursor over the file TELCOM on the MENU and typing  twice.
5. Next, type **f-1** to enter the SETUP menu of TELCOM. Select the communications parameters to these values to match the parameters set for the Apple IIc. Use  and  to move to each parameter. Use  and  to change the value for the parameters.

CONNECTION	RS-232C	PARITY	NO
PROTOCOL	ON	ECHO	OFF
SPEED	9600	LINE DELAY	6
WORD LENGTH	8	PRINT	OFF
STOP BITS	1		

The remaining default parameters can be used. Type  to return to the PC-8401BM terminal mode.

6. On the Apple IIc, select "Transmit A File" from the Main Menu. You will be prompted for what file on disk in the Apple IIc you want to send. Type the filename and . You will next be prompted for the protocol. Type **Y** (yes) to use the protocol. (The protocol is the Christensen protocol which is the same as the MODEM7 protocol on the PC-8401BM.)
7. On the PC-8401BM, type **f-4** (DOWNload). At the prompt, FILE TO DOWN?, type the name you want to call the file being sent from the Apple IIc and what drive you want to store it on in this format.

**d: filename.EXT** 



The file transfer is now in progress. COMPLETE messages will appear on the screens of both computers when the file has been successfully transferred.

### UPLOADING A FILE FROM THE PC-8401BM TO THE APPLE IIc

Refer to the section above and follow steps 1 through 5. Then, begin with no. 6 below.

6. On the PC-8401BM type **f-3** (UPload). At the prompt, FILE TO UP (W)?, type the name of the PC-8401BM file you want to send to the Apple IIc. Type the PC-8401BM filename and the drive where it is stored in this format.

**d: filename.EXT** 

7. On the Apple IIc, select "Receive A File" from the Main Menu. You will be prompted for the name you want to call the file being sent from the PC-8401BM. Type the filename and then . You will then be prompted for the kind of file you want to transfer. If it is a text file, move the cursor over TXT and then type .

The file transfer is now in progress. COMPLETE messages will appear on the screens of both computers when the file has been successfully transferred.



## COMPUTER TO COMPUTER COMMUNICATION WITH THE DEC VAX

### CONNECTING THE COMPUTERS

In this example, the VAX is running under the VAX/VMS operating system and is connected directly to the PC-8401BM through the RS-232C port on the PC-8401BM and a serial connector used for communications to the VAX. VAX systems are configured in many ways using different serial connectors. Check with the VAX system manager for the specific cable to use with your PC-8401BM. Be sure the PC-8401BM is turned OFF until the serial cable is securely connected to the serial port on both computers.

### DOWNLOADING A FILE FROM THE VAX TO THE PC-8401BM

Follow these steps to download from the VAX to your PC-8401BM.

1. Turn on the power to the PC-8401BM. Start the TELCOM program by placing the directory cursor over the name TELCOM on the PC-8401BM MENU and typing **↵** twice. Type **F-1** for the SETUP menu.
2. As mentioned above, VAX system are configured in many ways. It is necessary to check with the VAX system manager for the communications parameters for use in the SETUP screen.
3. After setting the communications parameters, you should be in the terminal mode with the VAX system prompt with a directory of VAX files displayed on your screen.

4. Type the VAX command: **COPY filename tt**. This command selects a file from the VAX directory for transmission to the PC-8401BM.
5. Next type **F-4** to start the DOWN(load) command. When the prompt FILE TO DOWN? is displayed, type a filename for the PC-8401BM with or without a drive designator as necessary and type **↵** twice. You will see the file contents displayed on your screen as it is received by your PC-8401BM.
6. When the VAX system prompt appears again, it means the data is finished transmitting. Type **F-1** (CAN) to complete the DOWN(load) command. You will see the message COMPLETED.

### UPLOADING A FILE FROM THE PC-8401BM TO THE VAX

1. Turn on the power to the PC-8401BM. Start the TELCOM program by placing the directory cursor over the name TELCOM on the PC-8401BM MENU and typing **↵** twice. Type **F-1** for the SETUP screen.
2. As mentioned above, VAX systems are configured in many ways. It is necessary to check with the VAX system manager for the communications parameters for use in the SETUP menu.
3. Type the VAX command at the VAX system prompt: **COPY tt filename ↵**. This gives a VAX filename to the file from the PC-8401BM.
4. Type **F-3** to start the UP(load) command. The prompt FILE TO UP (W)? will be displayed. Type in a filename to be sent from the PC-8401BM to the VAX with or without a drive designator as neces-

sary and type **←**. You will see the file contents displayed on the screen as it is transmitted.

5. When the data is finished transmitting, you will see the message: COMPLETED.
6. Type **CTRL Z** to close the file on the VAX.







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